THE BUILDER

VOL. CII.—No. 3809. APRIL 5, 1912.

CONTENTS.

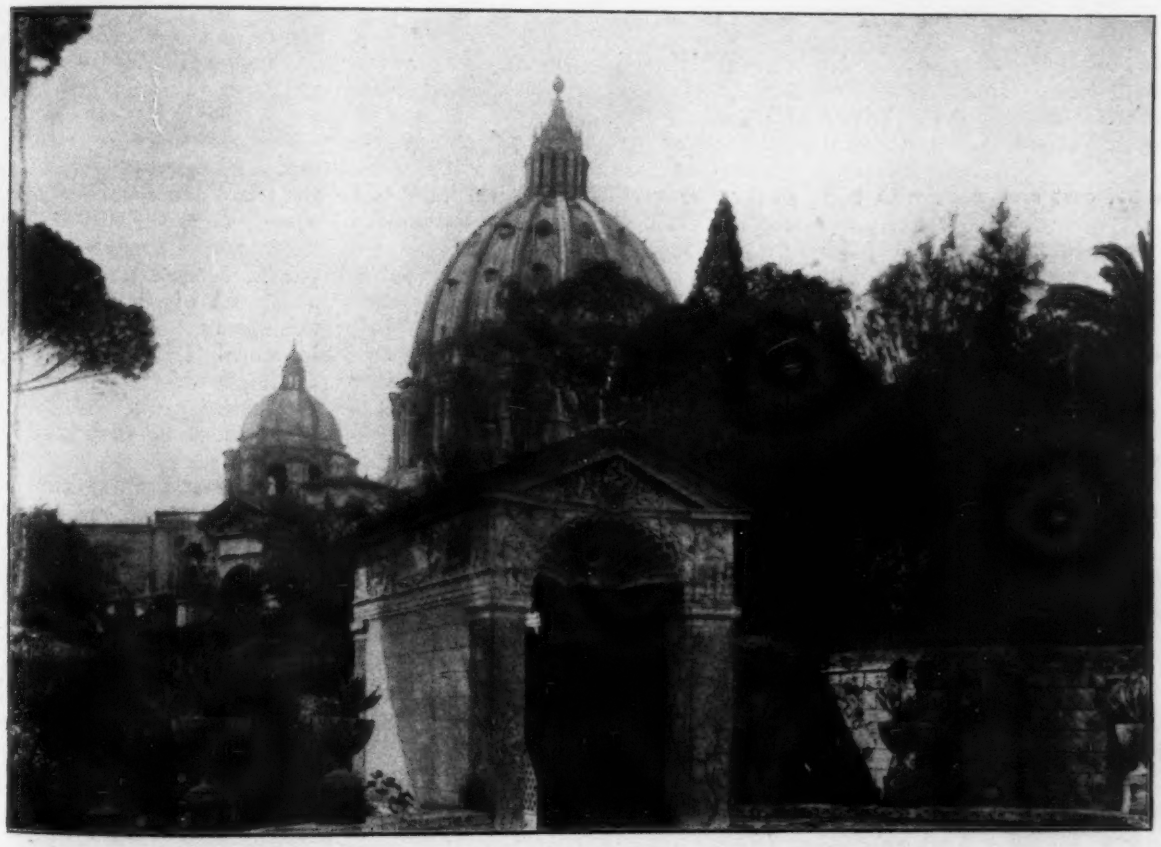
	PAGE
A Papal Pleasure House (with Illustrations)	385
Notes	388
The Royal Institute of British Architects	389
Picture Exhibition	389
The Architectural Association: Sixth Spring Visit	391
Competition for St. Peter's, Acton Green	391
The Carpenters' Hall Lectures	392
Engineering Societies	393
General News	393
Editorial Summary	395
Meetings	395
Architectural Societies	395
Correspondence	395
The London County Council	395
Notes to Illustrations	396
Fifty Years Ago	396
Competition News	396
Monthly Review of Civic Design:—	
Prestatyn Estate, North Wales (with Illustrations)	397
Monthly Review of Civic Design (*continued*):—	
Imperial London	399
Town Planning	400
The Fourth Report of the Wellcome Tropical Research Laboratories	400
The "Town Planning Review" (with Illustrations)	400
Notes	401
The Building Trade:—	
The Ideal Builder	402
The "Cement Gun"	402
Land Valuation	402
The London Association of Master Decorators	402
General Building News	403
Projected New Buildings in the Provinces	403
Foreign and Colonial	404
The National Physical Laboratory	405
International Smoke Abatement Exhibition, Royal Agricultural Hall	405
Books	406
Legal Column	407
Law Reports	408
London Councils	410
Patents	410
List of Competitions, Contracts, etc., Open	411
Prices Current	412
Tenders	414

Illustrations.

The Villa Pia, Rome. Drawn by Mr. C. A. Harding.

Headquarters for the Territorial Force Association, Nottingham. Messrs. Brewill & Baily, FF.R I.B.A., Architects.

Design for Almshouses, Nottingham, for the Wilkinson Smith Trust. Messrs. Brewill & Baily, FF.R.I.B.A., Architects.



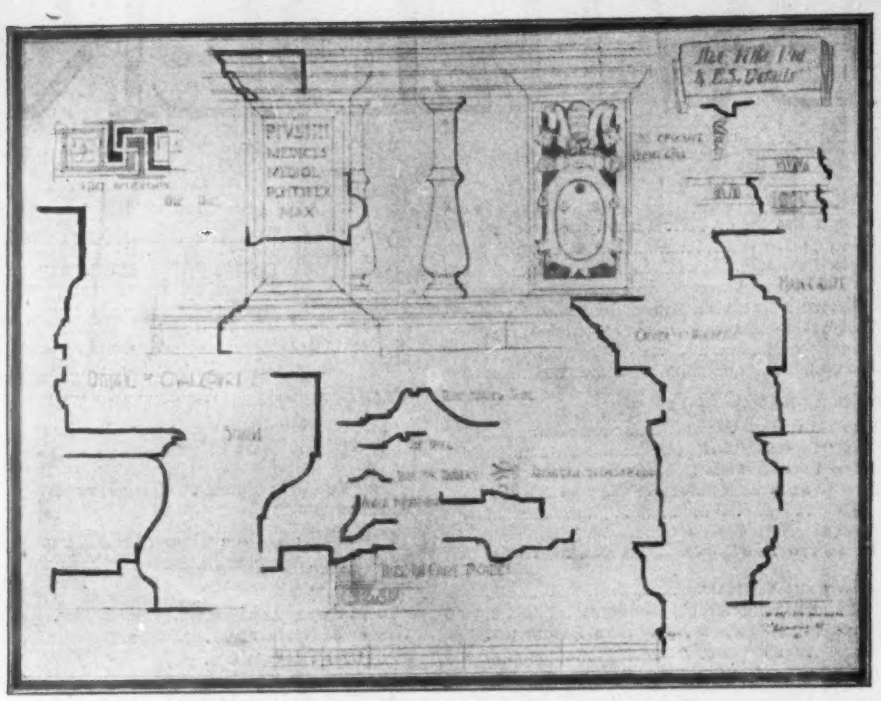
St. Peter's from the Villa Pia.

A PAPAL PLEASURE HOUSE.

On the eastern side of the Vatican Palace in an angle of the ground is situated the "little wood of the Belvidere," as Vasari terms it, rising gently at first and then more steeply to the upper gardens and observatory, and in this wood is situated the subject of this article.

The Villa Pia, or the Casino del Papa, was commenced in the year 1560, on the orders of Pope Pius IV. (Medici), and on its completion, a year later, was used by him as a place of retirement in the warm nights, where he used to converse with his nephew, S. Carlo Borromeo.

The architect was Pirro Ligorio, a Neapolitan, who seems to have been a person of importance at the Vatican. A man of distinguished family, he had studied deeply from the remains of the antique, especially of the villas of the Romans, and was the author of several works on antiquity. He was first employed about the Vatican by Pope Paul IV. (Carrafa), having been recommended to him as worthy of employment on St. Peter's, and under this Pope he endeavoured to oust Michelangelo from his work on St. Peter's: indeed, according to Vasari, ventured to remark that the great Buonarroti had reached his second childhood. He was finally dismissed to make room for Vignola, and died in 1583. Among other works he designed the Villa d'Este at Tivoli (1549) for Cardinal Ippolite d'Este, afterwards Clement VIII., who had been appointed Governor of Tivoli. The Villa Pia is the outcome of Ligorio's studies in the antique, and is said to have been an imitation of ancient villas, but the Renaissance architect of the best days was not bound to imitation, and the idea of reproduction did not enter his mind. His work was rather the result of the impression he had received while studying, expressed in his own way and tempered by his own character. Most of the materials of which it is constructed came from the Stadium of Domitian. Unfortunately, the original setting has disappeared, and the gardens, especially the lower portion, are much neglected. A view engraved by Falda in 1670, and reproduced in Triggs' "Art of Garden Design in Italy," shows the scheme as then existing, but of these gardens



The Villa Pia, Rome : Details.

there are now only a few overgrown paths and one small weed-covered pool.

An examination of the plans will show that the scheme consists of an elliptical court with the major axis running, approximately, east and west, with two buildings placed on the minor axis; the southern is a two-storied casino, and the northern, a loggia, with a lymphæm and water-chamber below. At the east and west are two small arches with gates, which close the court. Owing to the slope of the ground the casino is surrounded on the south by an area to keep off the water, and the lymphæm below the loggia rises out of a pool on a lower level, access to which is obtained by staircase ramps on either side of the courtyard, starting outside the archways and terminating in the lower garden. This is a rough semi-ellipse in form, with a low brick retaining wall and marble obelisks, terminating piers at the sides of three converging paths, which are said to be the remains of a design for gardens prepared by Sangallo.

Before considering the buildings in detail it should be noted that they have been very badly used, and also that, according to an inscription on the north front of the loggia, they were restored by Pope Leo XII. There are some drawings in the Vatican Library, made in 1836-1837, to which reference will be made later, which show some minor differences from what remains at the present day.

The casino is at present used as a repository for the late Pope's (Leo XIII.) letters, and permission to measure the interior was therefore refused; it contains two or three fine ceilings, some paintings by Zuccaro Barroccio and Santo di Tito, some antique mosaics, and very interesting floor-tiles. There are also some very fine terra-cotta panels from the Borgia apartments placed here by Canova.

It will be seen that on plan the loggia of the casino balances the loggia on the opposite side of the court. It is a barrel-vaulted apartment, with apsidal ends, roofed with semi-domes, in which are two niches containing antique statues: the walls are covered with a kind of coarse mosaic of dyed marble chips, and above this is a painted frieze of cupids. It might here be mentioned that the frescoes, mosaics, and plaster-work were carried out by a band of artists under the direction of Marc Antonio Amulio, who was decorated for his services by the Pope in 1561. There are two fine marble basins in this loggia which are shown in the drawings above mentioned as having marble candelabrum shafts, richly encrusted with carved ornament, above the basin, for water, but of the shafts there is now no trace. The ceiling is especially interesting (see views); above the frieze is a moulding of white marble which marks the springing of the barrel-vault, above this are four small plaster panels, divided by hermæ and forming a division of the vault surface. Above this again are large fresco panels, separated by modelled candelabra, gilt, the centre one surrounded by a broken pediment, and above again are three large fresco panels, forming the centre of the vault. The semi-domes are slightly different in treatment and contain three fresco panels, and in the top of the semi-dome is a plaster

The Villa Pia : North Entrance.

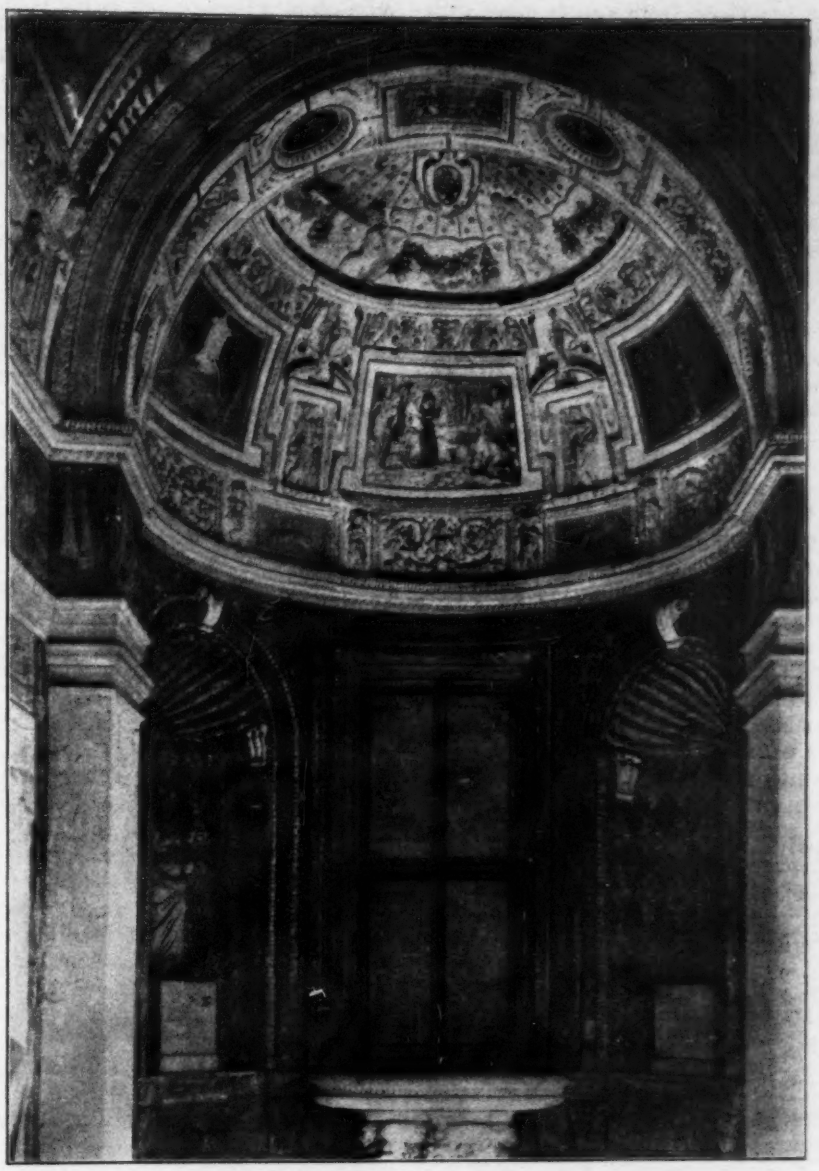
The Villa Pia : Side of Loggia.

enrichment which suggests the forerunner of the Adams work, and is also very similar to plaster-work in the wall arcades of the Villa di Papa Guilio. The arches separating the semi-domes from the vaults are painted in fresco and richly panelled and moulded, and in the centre have the Medici arms in relief. The whole of the enrichments here are picked out in gold, and give a general effect of great richness to the whole composition. The pavement of the loggia is of coloured marble and contains two *cosmati* slabs set in the design. In the centre of the loggia, against the wall, is an antique statue on a Corinthian capital.

The exterior is well designed and is very reminiscent of the work at the Villa Medici (now the French Academy) completed by Lippi about twenty years before. Above the small Order is a high stage divided into three by pilasters, with floral scroll enrichments, in the centre division of which are three smaller panels, two, round-headed, containing figures, and a centre one, square, with *armorini* supporting the Papal arms. A long panel fills up the upper part of this division and contains a Latin inscription. The division of the front is completed by two narrower panels containing two medallions and panels. Above this is a string-course ornamented with a fret, and above in the centre portion are three windows surmounted by medallions and floral garlands. At the sides are two niches containing statues. The frieze is separated by an astragal from the lower portion, and is enriched with a luxuriant floral scroll. The whole is surmounted by a cornice and tiled roof hipped back to the centre.

The steps in the court are flanked by *putti*, of white marble, riding on sea-horses placed on the cope of the dwarf wall surrounding the court. This court has a range of seats broken only at the porticoes and arches, and on the wall are plaster vases containing plants, which have, however, been moved from their original positions, as may be seen from marks on the cope.

The pavement of the court is a geometrical pattern in grey and white marble, and in the centre stands a fountain attributed to Gio Vasanzio, who was called "il Fiamigo," a Flemish architect who worked on the Villa Borghese in 1616. This fountain consists of a basin of basalt supported on trusses, and at the ends are placed *putti* and dolphins standing on shells in the water. The loggia is reached, like the casino, by steps from the court, and, like it, contains a barrel-vault and two semi-domes. The elevation is simpler in conception and consists of the Order, above which is a high attic with three divisions. The centre panel contains a representation of Apollo and the Muses, and in the middle is a pediment borne on twisted columns framing a seated relief figure of Tragedy and bearing the Papal arms in the centre. The side panels contain similar pedimented frames in which are figures of Prudence.

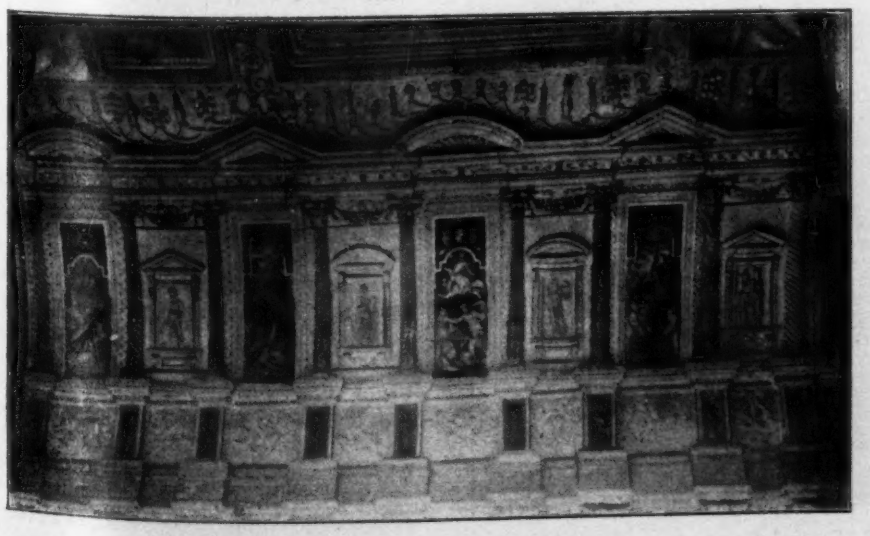


The Villa Pia: Apse of Loggia.

On the pilasters at the end are placed caryatides boldly modelled, and these are repeated round the corner. The large pediment contains a representation of Aurora surrounded by the signs of the Zodiac.

The side elevations are also worthy of study. The entablature of the Order is broken to admit of a window, and is stepped against a panelled plaster on the north angle. The caryatid figures also appear and a freely-handled plaster panel fills up the attic stage. The whole is crowned by a segmental pediment, placed over the whole front, without regard to the break of the cornice over the pilaster referred to above and without regard to the axis of the window.

The interior is also interesting and quite different to the loggia of the casino. The surface of the barrel-vault contains, above the springing, an architectural division of a tiny Order of columns, some fluted spirally, some straight, and some encrusted with scroll foliage, bearing a complete entablature and pediments, and forming panels, alternately fresco, and moulded in relief, as small windows.



The Villa Pia: Barrel-Vault of Loggia.

Above are three large panels filled with frescoes, and the surface of the vault is decorated with enrichment in low relief. The semi-domes are similar with respect to the columns, but the panels are alternately oval and square, and there is no fresco decoration.

The walls of the apse are plastered and have a diaper of pieces of mosaic set in the white surface. The heads of the niches are elaborately but daintily enriched, and marble basins are placed in the ends of the apses.

The north elevation of the loggia is simpler, but, according to the drawings, has suffered from neglect and ill-treatment, as all trace of male carytides shown as existing in 1836 have disappeared. There is a large opening extending from floor to cornice, and the Order of the front appears as a minor feature supporting a cove, in which is an inscription to the effect that the Pope Pius IV. built this portico and ornamented it with columns of Numidian marble. The frieze contains an inscription recording the restoration of this front by Leo XII. In the pediment are the Medici arms, and they are repeated on the two centre dies of the white marble balustrade. The lower portion, or "lymphæm," ends in a fern-grown shelf over a pool, into which water is ever falling from two basins at the sides of the building, and is ornamented with three antique statues, the centre one of which, a beautiful Thetis, is raised on a rocky pedestal covered with ferns, and stands against a circular-headed panel. The statues at the sides are smaller, and are placed in square recesses lined with antique slabs.

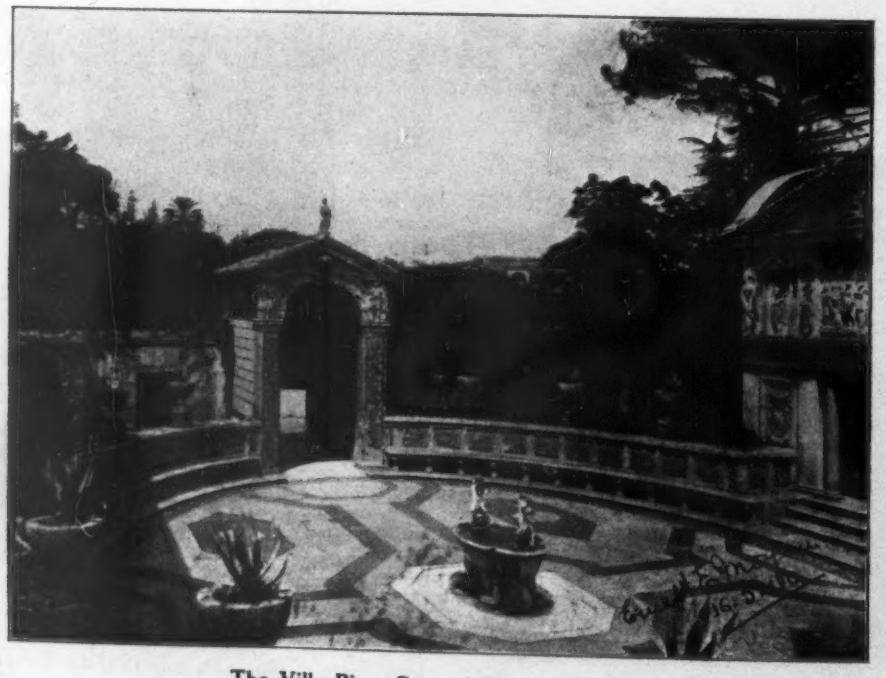
The pool overflows in a very naïve manner into a gutter. The water-chamber is placed behind the lower portion of the loggia.

The arches at the entrance are also beautiful, both in design and detail. The two pilasters, with the fronts, encrusted with coarse mosaic, support an arch and pediment, and the whole is set to the curve of the court. The inner arches are filled with graceful shell enrichments, and the outer tie-rods are decorated with foliage. The interior consists of a barrel-vault richly panelled, above walls containing three niches on each side and decorated in mosaic in a manner suggestive of the antique Roman wall paintings. The friezes on the exterior also are beautiful pieces of design based on that of the Roman Temple of Faustina. The simple wood gates are also worthy of note.

The above is a description of a work which is little studied at the present, and which shows a Renaissance architect's idea of a small villa. Free but scholarly in its treatment, all the details exhibiting much thought and care, and the whole design showing a straightforward conception, this villa may fitly take its place in the series of beautiful small villas of the culminating period of the Roman Renaissance.

As Mr. Halsey Ricardo pointed out in his paper on the Villa Madama, read before the R.I.B.A. (January 20, 1911), the architects of the Renaissance wore their scholarship lightly, and surely no happier example of a happy saying could be found than the subject of this sketch. The forms are antique, much of the material is Roman, but as placed in position the result is entirely novel and entirely charming. The whole is typical of the period, and testifies to the skill alike of Ligorio and his assistants. No words, however, and no photographs can give any idea of the exquisite charm and sparkle of this work, situated as it is under the shadow of St. Peter's, nestling among cypress-trees on the hill, the water playing softly in the fountain and overflowing from the pool with a gentle melody which seems to be the embodiment of the spirit of the place. Time has, in the main, dealt kindly with it, and a few slight repairs to the fabric are all that is necessary to preserve this gem for many years to come to delight the eye and sense of those who have the privilege to enter the garden of the Vatican and to visit this Papal pleasure house.

[The photographs accompanying this article are from negatives by Mr. E. E. Morgan, A.R.I.B.A., to whom we are indebted for permission to use them.]



The Villa Pia: General View of Court.

NOTES.

Monuments in our Parks.

THE idea of the average Englishman that a park should be a little piece of Nature preserved in all its sylvan beauty amidst the formality of its surroundings was again put forward in the debate in the House of Commons on the site for the King Edward Memorial. Some members appeared to object on principle to statues being placed in a park, the idea seeming to be that no statue is ever as beautiful as the blades of grass it supplants. This opens a large question, and on the same reasoning no building would ever be sufficient compensation for the light and air it displaces or for the beauty of sky which it hides from our view. If the idea that the least of the creations of Nature is preferable to the greatest of the creations of art is to prevail in such matters, there is, of course, no more to be said; architects and sculptors may put up their shutters, and the King Edward Memorial take some non-material form. After all, it all depends, we suppose, on how the thing is done. Candour compels the admission that, as a matter of fact, many of the statues and other monuments we have hitherto put in our parks are no real compensation for the natural beauty they displace. But the thing can be done, as anyone acquainted with the Stadt Park at Vienna, or the public gardens of Paris, and of many other continental cities would immediately realise. Apart from the artistic merits of any particular statue, the placing of it is an art in itself—an art which in the past has been too much neglected in this country, and has not received too much consideration in the King Edward Memorial. So long as our public authorities or selected Committees continue to allow any other consideration but that of artistic fitness to influence the position of our public monuments they cannot reasonably complain of the results.

Architecture and Local Patriotism.

WE cannot but sympathise with the outburst of patriotic feeling which marked the opening meeting of the Glamorgan County Council in their new County Hall at Cardiff, even though it was caused by dissatisfaction with certain aspects of the building. The entire absence of anything emblematic of Welsh ideals and national sentiments was adversely commented upon, though the meeting was not altogether agreed as to whether certain features behind the Chairman's seat were or were not goats' heads, or "billy-goats' jimmies," whatever they may be. The names of Nelson and Wellington inscribed on the walls were all very well, but where were Owen Glyndwr and Owen Gwynedd? Byron was given another niche in the temple of fame, but why not Dafydd ap Gwilym and other native worthies whose names are even more difficult for the mere Saxon to pronounce? Why not, indeed? In these days of cosmopolitanism in art it is just these fine distinctions which are so valuable as enabling an architect to express more exactly the purpose of a building and to give it distinctive character and local interest. While the

functions of County Councils remain the same in every part of the United Kingdom the County Halls which express these functions must no doubt tend to be somewhat alike in their lay-out and general appearance. The finer shades of expression seem to depend largely on a sympathetic understanding and presentation of local character and tradition in those features which are not so entirely dominated by matters of practical necessity common to all alike. If the Saxon was only as susceptible as the Celt to fine shades of artistic expression architects would probably devote more attention to them, greatly to the advantage of the art.

The Question of Acoustics.

As, moreover, the acoustic properties of this hall do not appear to be quite satisfactory, the *Western Mail* suggests that the alterations necessary to repair this defect will provide an opportunity—in the form of hangings or drapery—for the introduction of such national emblems as may be desired. Some such device is often successful in overcoming these acoustic difficulties, which certainly constitute one of the most uncertain and puzzling of the problems with which the modern architect has to deal. For some reason or other, it seems most difficult to guarantee that a hall of any considerable size shall be perfect for speaking and hearing. Although its height and its proportions generally, no doubt, exercise a considerable influence, it is possible that the hardness of modern materials and finishings have a good deal to do with it. Hard bricks in cement finished in Keen's cement and concrete ceilings probably accentuate the difficulty. Although we are by no means sure that it would be possible to lay down any precise and definite rules, or to evolve any general principle of universal application that would ensure good acoustic properties in any and every building, the subject is one to which more systematic attention might well be directed. Perhaps the Science Committee of the Institute might make a pronouncement on this question, or suggest it as a fitting subject for a paper and discussion at an ordinary meeting.

Competition Ethics Again.

We regret to see it reported that the Melford Rural District Council, after having engaged an independent architect to decide finally between four selected designs in a competition, have thrown over his award for reasons which appear from the report to be entirely inadequate. One member, we are pleased to see, could not understand the Committee calling in expert advice and then ignoring it. Neither can we. Nothing could be more illogical or, as a general rule, more detrimental to their own interests. A letter to the local Press states that the competitor whose design was finally adopted by the Council had circularised the members of the Committee before any award was given, pointing out the merits of his own design. Any such conduct as is here alleged is rightly considered to disqualify a competitor in a properly-conducted competition, and it cannot be too strongly condemned.

The Strike.

It is to be hoped that even before these lines appear in print the miners' leaders will have adopted the only course now open to them, and will have advocated a general resumption of work. It is not for us to discuss in these columns the wisdom of the policy either of the men or of the Government in connexion with the strike, but in view of the general dislocation of trade we may point out that nothing is to be gained now by useless recrimination or by a prolongation of the dispute. The men may not realise the vast concession that has been made in the recognition of the principle of the minimum wage, but the leaders must appreciate it, and the nation are alive to it. The prolongation of inactivity can only now serve to eliminate any sympathy with the miners' cause and arouse the country to call for immediate legislation for the protection of its industries.

PICTURE EXHIBITION.

The Royal Society of British Artists' Spring Exhibition at the Suffolk-street galleries is quite the most interesting show of pictures which this Society has provided in recent years. Every wall repays examination. There are many pictures of high merit, and the general level is much above the average. Mr. Alfred Hartley's "Sky and Upland" is one of the first pictures to attract attention on entering the central gallery for its abstract poetic and decorative quality. Mr. Hartley's work is much closer to nature than many more realistic efforts: the clouds and upland and sheep resolve themselves under his brush into a generalised composition in which photographic verisimilitude is the last thing sought for. The "After the Ball" of Mr. Joseph Simpson recalls in the reclining attitude of the female figure a well-known work of Manet. Mr. Simpson uses his colours with a somewhat Post-Impressionistic boldness, but he attempts no tricks in either composition or drawing in this interesting picture. Our eye is next caught by a crude but effective and animated scheme in green, blue, and white, worked out in a mosaic combination of colours after the manner of some of the early impressionists—"The Border Castle," by Mr. Foottet. This method of painting has appealed to more than one artist at the exhibition, but none has employed it with greater apparent spontaneity than Miss Dorothea Sharp in her two pictures, "The Wind on the Hill" and "The Apple Tree." Mr. Elphinstone and Mr. D. Murray Smith are stylists. Each composes, arranges, selects; each goes to Nature with the object of discovering her secrets rather than with the object of serving up hot, as it were, a counterfeit presentment. Of the two, Mr. Murray Smith is the more formalistic; Mr. Elphinstone, we should imagine, the more inspired. "The Two Mills" by the latter painter, a winding canal, threaded by shipping, with mills in the distance, is one of the most notable pictures by this artist which we have seen. In quite another manner is "The Bathing Place" of Mr. Harry W. Adams, which is interesting and effective in its spacious way, but not quite convincing. "The Towing Path Bridge" by Mr. John Muirhead, represents yet another phase of the painter's outlook, in which the play and gradations of atmosphere on the extended vistas of a rolling countryside provide the theme. The work of the President, Sir Alfred East, is too well known to require commentary in the brief space at our command; and for the latter reason we must also omit mention of many works that certainly deserve it.

ART MUSEUMS AND PICTURE GALLERIES.

The usual fortnightly meeting of the Royal Institute of British Architects was held on Monday, at No. 9, Conduit-street, W., Mr. E. Newton, A.R.A., in the chair.

Mr. H. T. Hare, Hon. Secretary, announced the decease of Mr. F. W. Albury, elected an Associate in 1866 and Fellow in 1875, and placed upon the retired list of Fellows in 1900.

Mr. E. T. Hall then read a paper, of which the following is an abstract, on "Art Museums and Picture Galleries":—

"Let us consider the main lines and general principles on which an art museum should be designed.

It must be borne in mind that there are often priceless works of art in such a building, and as, alas, there are thieves in the world, it is not desirable to have more than one door (or group of adjacent doors) both for the ingress and egress of people in normal circumstances, so that all may be under observation by the same attendants! Fire escape exits in a large building may be necessary, but these should be safeguarded. The common ingress and egress facilitates the placing of cloakrooms. A spacious vestibule or hall will, of course, be necessary, and should be consonant with the dignity of the place.

Assuming a large building on more than one floor, the main staircase should be conveniently near the entrance, so that visitors to departments upstairs may at once be separated from those to the lower departments, thus reducing or disseminating the volume of people.

The administration offices should be placed in a position convenient for those who have merely business relations with the museum.

I do not propose to deal in detail with such necessaries as refreshment-rooms, etc. They may be placed where convenient for general access, but it must be remembered that the supplies and staff should have access without having to pass through the galleries.

The general disposition of departments now demands attention. Top-lighted galleries may be placed in internal courts with rooms around them or they may be on the top floor. The latter position is, I think, preferable for many reasons, one of which is that if the central gallery has a roof at the height of the surrounding building this will be quite unsuitable for anything but sculpture or architecture, and if the roof be kept down the shadow from adjacent buildings will be objectionable.

There is a widespread view among directors that there should be internal open courtyards to museums, and Doctor Gustav E. Pazaurek, the director of the museum at Reichenberg, in 1903, said:—"The internal courtyards of a museum should be laid out as gardens in which should be sculpture meant for outdoors." You will, of course, call to mind many sculpture gardens in Rome, Florence, and other parts of Italy. It is objected by some that our climate does not suit open courtyards for sculpture, etc., although last summer we had climatic conditions as favourable as any further south, but if we accept the inferential objection, this could be met by a plain glass roof with open sides, converting the courtyard into a covered garden. I think this courtyard feature is one to be encouraged and developed, and, although we cannot have such large spaces as the Italian courts and gardens or even the Grand Cour du Louvre at Paris, we could frequently have them of areas larger than the Octagon Court of the Vatican, which is but 20 metres across.

This suggestion of sculpture in gardens brings us to the consideration of sculpture galleries themselves. There is considerable difference of opinion as to the best means of displaying

sculpture. Some authorities favour large courts or galleries with plain glass roofs all over the area—in fact, the nearest approach to the open air; others say sculpture is best displayed by light coming from windows placed high up near the ceiling, the sculpture being placed near the opposite wall so that light may come diagonally to it.

Coming to the general disposition of other galleries in a museum, what is to be the principle on which they are to be laid out? Are galleries for all the different exhibits on a floor to be in one range—that is, to open into one another so that a visitor shall pass through all and make a circular tour back to his starting-place? Are galleries to be in groups so that each group shall take one branch of art and illustrate it through all time? Should art work of all kinds of each period or era be illustrated together in the same room or gallery?

For the convenience of administration and supervision only, the one continuous range is better. Large numbers of people are passing in only one direction and do not interfere with those following them. On the other hand, if a visitor wants to contemplate one period of art—be it painting or any other manifestation—he has to make the other rooms mere passage-rooms, and this, further, is disturbing to the art students in those other rooms. Professor Lichtwark condemns galleries used as passage-ways, and lays down as fundamental conditions of planning "free movement and quiet." He thinks the ideal is "broad corridors unobstructed and exhibition galleries disconnected one from another and accessible only from the corridor."

In small museums or galleries the question we are considering settles itself. The floor area is limited and the galleries on any one floor become a manageable unit which, if well arranged, meets with general acceptance, as in the examples of Aberdeen and Linz. Liverpool is on a different plan, but is still of manageable dimensions. It would appear to be possible to apply this small unit principle to a museum of any dimensions, however large. The Kaiser Frederich Museum at Berlin, erected in 1905, is a combination of the two systems. You may go all round, but it is possible to short-circuit home. The City Museum at Amsterdam and the National Gallery in London are similarly arranged.

The general principles of the scheme having been considered, we come to the ordinary galleries. As far as I can gather, the general feeling in respect of all except picture galleries is that side-lighted rooms are best.

It will be readily seen that show-cases having shelves will be better lighted from the side than from the top. For efficient lighting in our northern clime, cases should not be placed more than, say, 20 ft. to 25 ft. from a window. Windows in our climate should be kept as close to the ceiling as possible so as to get the highest possible angle of light, and in order to get the valuable reflected or diffused light from the ceiling surface. Show-cases should be placed with the long axis perpendicular to the window. If they are placed parallel a visitor casts a shadow on to the exhibit at which he is looking if his back is to the window, and if he is facing it the glare of the window will be in his face, obscuring the exhibit in the case. Nothing is gained by making these galleries more than, say, 20 ft. high.

For the proper display of tapestry and carpets upon the wall, side light is imperative. They are lost and wasted in large galleries lighted by glass all over. The top light casts a shadow from each stitch on to its neighbour, thus darkening the whole colour effect, and when the tapestries are covered with glass the rafters of the roof are reflected in the glass.

In the case of pictures with heavy and dark varnish and those darkened by time, light from above shows only a mass of black, while in a good side light they still present great richness of colour, and details become visible which had before completely escaped the eye. The superiority of side light is that it permits of placing oneself in a position to see the roughnesses on their lit-up side.

It may be noted from experiments that a good height for the window-sill of side-lighted rooms is 7 ft. 6 in. above the floor, and in Brussels, where the sills were lower, the authorities have fitted shutters to a height of about 7 ft. from the floor.

One difficulty with window-lighted rooms is the glare on the opposite wall. In the Bardini Gallery the back wall is not parallel to the window, but at an angle of one in eight, and there the difficulty disappears. In many side-lighted rooms, as, for example, the Hof Museum at Vienna, the City Museum at Amsterdam, the proposed Museum at Haarlem, and other museums, the side walls are not at right angles to the window, but at an angle of about 75 deg. converging inwards, and this materially adds to the illumination of the pictures. In some galleries pictures on the side walls which are perpendicular to the window are each set out at a similar angle, but that is not so satisfactory, as each casts its neighbour into shade. It should be noted that no picture can be hung on a side wall close up to the external wall in which is the window, but this space is always utilised for the doorway.

The very general commendation of side lighted rooms for pictures, and their adoption in most of the large Continental galleries—as well as their existence in the many palaces all over Europe, which, after all, form the most renowned places of exhibition—would lead us to conclude that such picture-rooms should be provided in every large museum. Mr. A. W. Weissman, architect, of Amsterdam, points out that these should not be on the ground floor because of the reflection from the surrounding ground. However, the top light in some form is so general, and the convenience of being able to get a great amount of wall space for hanging on a limited site is so great, that this system will always commend itself for picture galleries.

I find that the general consensus of opinion is that great areas of light all across the ceiling, even where these are kept well away from the surrounding walls by wide coves, are to be avoided. They unduly illuminate the floor. The centre of the ceiling should be opaque—*i.e.*, there should be a plaster ceiling to obstruct direct rays passing to the floor, and only the side portions should transmit the light. Lantern lights with vertical glazed sides, as in Sir John Soane's Galleries at Dulwich, have been tried, but these are not satisfactory, as the area of the light is not adequate to illuminate the opposite wall.

A great improvement is seen where the flat ceiling of the lantern is reduced in width and the glass sides sloped inwards from the bottom. This arrangement exists in some of the rooms of the old part of the National Gallery in London, but the slope was too steep and the area of light had to be supplemented. It is proposed to adopt the principle in the new Welsh National Museum. In the new rooms at the National Gallery the lantern form has not been adopted, the skylights being of the ordinary saddle-back type, and there has been in the newspapers a great deal of adverse criticism of the result.

Another form giving excellent results in an oblong gallery is a semicircular or segmental roof with sloping side lights divided by a flat plaster ceiling, or, in a square gallery, a centre skylight similarly divided by a flat ceiling. An outer glass roof and inner ceiling light should be avoided; the double glazing greatly diminishes the light.

In this connexion it is opportune to speak of the height of top-lighted galleries. This height may be well determined by drawing a 45 deg. angle upwards from the base of the picture (say, 3 ft. from the floor), and where it cuts a vertical line parallel to and distant from the opposite wall one-sixth of the width of the gallery, the point of intersection should be the base of the skylight. Thus, in a gallery 24 ft. wide the base of the roof light should be 23 ft. above the floor and 4 ft. within the face of the wall.

Top-lighted picture galleries in museums should not be more than 30 ft. wide. The very few extra large pictures demanding greater distance for observation can be placed at the ends of galleries. Any greater width makes the height too much.

Rolling blinds are necessary for skylights to adjust the varying intensity of sunlight, and these should be inside. In the new rooms of the National Gallery the blinds are external, and whenever there is a change of intensity in light men have to go on to the roof to alter the blinds. This is very inconvenient, and external blinds get very dirty. The floor of all galleries should be dark to absorb and not reflect light, and the same remark applies to the dado or base of the wall.

The German directors and Professor Bather of late years have recommended that works of all kinds of art of a period should be located together in a room architecturally reproduced in the same period, so that all may be seen in their natural environment. Dr. Brinckmann, the Director of the Hamburg Museum of Art, says:—"The grouping of various art objects together shows how all grew in common out of the soil of a certain temper of mind and a certain hereditary taste," and he arranged a Paris room in this way so as "to display the individual objects in a manner most favourable to their mutual reaction in form and colour." Of this room, Dr. Graul, the Director of the Grassi Museum of Applied Art at Leipsic, writes:—"Except where the purely scientific interest compels a store-room arrangement, soon no museum directed by taste and intelligence will permit any other method of exhibition."

An important feature of a museum is the reserve galleries. They are not mere warehouses or storerooms. Some may be so used, and these should be near the goods entrance, but the main purpose, according to modern ideas, is that they shall be accessory to the exhibition galleries and that from time to time exhibits proper in the galleries shall be changed so as to keep up public interest.

Another matter of interest is that there should be students' research and copying rooms off each department, where students may be quiet. Copying in main galleries is deprecated by some directors as not good for students or for the public.

I have not yet mentioned the children's room as part of a museum equipment. It is, however, a modern adjunct, and it should be near the entrance.

Growing interest by residents in a city in the former history of their environment is a most healthy sign, and to encourage this sentiment a department should be set aside to illustrate by sketches, drawings, and models—in some cases actual size—the archæology of the district, the demolished streets and old-world buildings, the former rural scenery, etc., of cities which may now be covered by a mass of modern buildings.

Last of all the public rooms is a lecture theatre, and this should be so arranged that, while it is accessible from the museum, it may be separately entered from the outside so that it may be used when the museum is closed. It requires its separate cloakrooms, lavatories, exits, etc. Its form depends on circumstances. In some cases its use may be restricted to lectures, in which case a semicircular form is convenient, with tiers of seats. In other cases it may be adapted for other uses as well, as, for example, for photographic or microscopic exhibitions, in which case it is better to make it rectangular with a level floor."

[The following buildings, among others of a similar nature, have been illustrated in the *Builder*:—

Sheffield, Mappin Art Gallery (Messrs. Flockton & Gibbs)—Plan and elevation. February 4, 1888; Perspective, October 9, 1897; Extension, May 14, 1904.

Tate Gallery (Mr. S. R. J. Smith)—Elevation and plan, January 2, 1897.

Bury, Art Gallery and Library (Messrs. Woodhouse & Willoughby)—Elevations and plans, October 12, 1901.

Forest Hill, Horniman Museum (Mr. C. Harrison Townsend)—Elevation and plans, February 8, 1902.

South Kensington, Victoria and Albert Museum (Sir Aston Webb, R.A.)—Elevations and plans, May 2, 1903.

Bristol, Art Gallery (Messrs. Wills & Houston & Houston)—Elevation and plans, April 15, 1905.

Berlin, Kaiser Friedrich Museum (Herr von Ihne)—Elevation, January 5, 1907.

Birmingham, Art Gallery, etc. (Messrs. Ashley & Winton Newman)—Elevation and plans, January 19, 1907.

Cardiff, National Museum of Wales (Messrs. Smith & Brewer)—Elevation and plans, April 2, 1910.

Manchester, Library and Art Gallery, Proposed (Messrs. Crouch, Butler, & Savage)—Elevation and plans, December 15, 1911.]

Dr. Evans Hoyle (Director of the National Museum of Wales), in proposing a vote of thanks to the author, said he thought it was essential that museums should be separated into sections for the general public and for the student and specialist. With regard to the sections for the student, they could not have too much material for comparison; but, on the other hand, the specimens for the general public must be limited in quantity, for each one must be the best of its kind and must be selected with a definite object in view and with a definite idea of what it was there for. This applied equally

to artistic productions as well as to objects which were for the instruction of scientific facts and principles. Full justice should be done to the works of art exhibited, and each should be hung in such a way as to show it to the best advantage. Pictures ought not to be jammed up together as if they were trying to get so many on a wall, for that was absolutely fatal to any proper realisation of a picture as a work of art at all. There was no one background which was better than another, but each must be selected to suit the objects which were to be placed in contiguity to it. Dr. Hoyle referred to the Bavarian Museum at Munich, which he said was specially designed for works of art already collected. He thought it was well they had that museum, but it would be an absolutely fatal principle to apply generally, because such a museum was obviously a finished museum. In other museums they had to go on adding, and hence they must have rooms which could be adapted for all objects. With regard to lighting, Mr. Smith, Sir Goscombe John, and he himself visited a great many museums in Europe, and the conclusion they arrived at was that for most modern pictures top lighting was the most satisfactory so long as it was not too vertical.

Sir Goscombe John, A.R.A.,
seconded the motion, and said that the two things which it seemed almost impossible to bring into line in these matters were the interests of the dilettante person and the interests of the students. Many museums, like that of South Kensington, were huge depositories of beautiful objects; glorified *bric-à-brac* shops in which one lost oneself. If a museum was to be a place to hoard beautiful things it must be arranged on very different lines to a museum for the purposes of the student. As to placing objects in their proper surroundings, they would at once disagree as to what the proper surroundings were. The church in the Kaiser Frederich Museum at Berlin was very interesting, but one certainly did not see the things to advantage, whilst they knew it was almost impossible to see many of the beautiful objects in the churches in Italy. One had to take a lighted taper and crawl on one's hands and knees to see the panels of Donatello at St. Antonio at Padua. He thought the most satisfactory lighting for sculpture was when it approximated to an open-air light, and wherever the light came from it should not bother the spectator in the slightest way. He recollected going some years ago to see the Hermes at Olympia, and found a window placed right at the back, which was absolutely the worst position in which to place sculpture.

Mr. Frank Dicksee, R.A.,
did not think there could be any question of the value of side lighting and top lighting for a picture gallery. Provided that the top lighting was scientifically right, it was the best way. As to backgrounds, it was difficult to say which was the best; but if they had to have one colour, he felt that perhaps red was the best. His own feeling was that it was an absolute mistake to have a neutral colour. If there was colour on the wall it started the eye on an exploring expedition in the matter of colour, and probably produced a better result than if they had a dull grey, colourless wall which did not stimulate the optic nerve in any way at all. He was inclined to think that architects when dealing with pictures concerned themselves too much with their architecture and not enough with the object which they were, as it were, called on to serve. He thought that even in that building they had put their pictures too high up on the walls. From the point of view of decoration they were too high, and from the point of view of examination they were undoubtedly too high.

Mr. W. Woodward
thought that the architect in designing a building for a museum tried to make a magnificent architectural building without the slightest regard for the uses for which it was to be put. They also had not enough idea of simplicity of planning. He was sorry Mr. Hall did not refer to the Tate Gallery, as he considered it one of the best lighted in Europe. It was a curious thing that they had curators and directors reading papers on museum planning, and yet they went on repeating the blunders of the past. A building was put up, and then the curators said it was all wrong. He trusted that when the next museum or picture gallery was built the directors would confer with the architect so as to prevent costly blunders.

Mr. H. H. Statham
considered the best way of lighting was a lantern in the centre, with the lights vertical and the centre part opaque. As to the lighting of sculpture, he thought the sculpture at the Palais des Beaux-Arts at Paris was exhibited under almost ideal circumstances. It was almost the same as daylight, but there was shelter for the weather. He was looking forward to the time when the Royal Academy would have the will and the power to roof in the courtyard of Burlington House and put all the sculpture there instead of crowding it into the rooms as now.

Mr. A. T. Bolton
said they heard a good deal about museums being an absolute weariness, but there was another side in regard to the design of museums and picture galleries. Anyone going to the Louvre on Sunday must be impressed with the great stream of people coming in, and they must derive a great deal of good from the association of a fine interior with the pictures. He thought these buildings should be planned in a large way with large rooms, and with a dignified architectural effect, for that was as important as the point of view of enabling the pictures to be seen in minute detail. He did not agree with Mr. Woodward as to the Tate Gallery, because he considered it one of the worst lighted he had ever seen. There was no gallery more troubled with reflections than the Tate Gallery. He had just seen the new Birmingham Gallery, and had been greatly impressed. There they had done exactly the reverse to what had been done in the new buildings of the National Gallery, and had gone back to the old flat ceiling, such as Barry designed for the National Gallery in 1870. He thought that if the pictures were found to be properly lighted at Birmingham, as he believed they would be, they would have to reconsider the matter.

Mr. Matt Garbutt
pointed out the difficulty of seeing some of the old pictures in museums owing to their being glazed, which, of course, was necessary for the presentation. He suggested whether it could be possible to put temporary black screens in front of these pictures to get over the reflection.

The Chairman
said the whole subject was a difficult one, but difficulties were the architect's opportunities. As architects they could only have one view, which was that fine art must be finely housed. Practical problems, however, must be faced, because, in so far as a building of that sort failed in its practical purpose, it failed also as a real piece of architecture.

Mr. Hall
briefly replied, and said Sir Charles Holroyd had written pointing out that one difficulty was the policing of small rooms. He did not think it would be possible to have screens as suggested by Mr. Matt Garbutt.

It was announced that an extra general meeting would be held on April 15, when the discussion on "The Newer Responsibilities of Architects" would be resumed and a further paper read by Mr. A. Saxon Snell.

THE ARCHITECTURAL ASSOCIATION:
SIXTH SPRING VISIT.

For the third time since its commencement members of the Architectural Association visited, on Saturday, March 30, the new Wesleyan Church House, Westminster, now in a very interesting stage. Members assembled in the Great Hall, of which the fine proportions can now be appreciated, though the inner dome above its pendentives is at present obscured by staging, albeit the latter afforded a chance of examining at close quarters the extremely bold coffering and modelled plaster-work. The planning of the tiers and galleries with the position of their entrances and exits in re-entrant angles of the square proves admirably adapted to secure at once a good view of the platform and great facility of access from all parts. It is risky to predict as to acoustical properties, but it appears that the re-entrant angles should also serve a purpose in preventing echoes. From consideration of mere window area it might seem that the Hall would be under-lighted, but in practice it is most satisfactory, the superior value of high lighting being well seen.

An inspection was next made of the dome construction, the large space between the inner reinforced concrete dome and the outer dome of timber covered with lead upon a skeleton steel frame being accessible, and containing apparatus in connexion with heating, ventilation, and lighting, and a spiral iron stair to the central cupola. The lead covering was also examined with interest, and portions of the cast enrichment were seen in process of fixing. Descending to the ground floor, which is placed 7 ft. above the road level to secure better lighting for the large tea-rooms and other rooms in the basement, the small hall, seating about 600, and the library, usable jointly or separately at will, were visited, and from thence the main entrance hall was reached. The planning of the grand approach to the Great Hall provides a most telling series of architectural contrasts. Entering at ground level into a low elliptical vestibule, a broad central flight of steps ascends to the ground floor. Here from the spacious and dignified entrance hall the library is approached on the left and the small hall on the right. The grand staircase, doubling back, continues as two flights above the vestibule, reuniting as a single central flight, and again diverging as two sweeping flights for the final rise to the Great Hall level, where it delivers most effectively into a long low foyer or ante hall, whose proportions immensely set off both the staircase and the Great Hall. It is quite the most ambitious staircase in London, and displays real architectural motive in the relation between each of the sequence of apartments from the entrance to the assembly hall. On either side of the main stair case are enclosed subsidiary stairs in the towers, approached both from the vestibule and the street, and serving also the basement and the assembly hall galleries, communicating with the latter by circular crush-rooms or ante halls in the angles of the building.

The interior detail is fresh and vital, though described by the architects, Messrs. Lanchester & Rickards, as "somewhat austere." The visit was full of interest, and was much enjoyed by a very large attendance.

COMPETITION FOR ST. PETER'S, ACTON GREEN.

A COMPETITION, limited to seven architects, for the Church of St. Peter, Acton Green, has just been decided by the assessor, Mr. F. R. Hiorns, A.R.I.B.A.

The site, at the corner of Southfield-road and St. Alban's-avenue, is rectangular and level. The back portion of it is occupied by a mission hall. The church has to be placed between this hall and Southfield-road, leaving access to the hall from St. Alban's-avenue. The immediate surroundings consist of small two-storied houses of the usual deplorable type.

The conditions require a total accommodation for 650 persons in the church, including fifty in a chapel on the north side of the church and thirty seats in the chancel for clergy and choir; also a clergy and a choir vestry, with lavatories, and an organ-chamber on the south side of the chancel.

The total expenditure, including architect's and surveyor's fees, was limited to 7,000*l.*; this amount to include heating and ventilation, fence to St. Alban's-avenue, pulpit, and a certain number of permanent fixtures.

The site, being restricted and partially occupied, allowed little opportunity for original treatment in the general lay-out; orientation necessitated the long axis of the plan being parallel with Southfield-road, with the west end and main entrance facing the side street. The position of the chapel and of the organ-chamber being laid down by the conditions, and the cost being strictly limited, the designs are necessarily all on the same general lines, and are all treated elevationally in a simple rendering in brick of the later Gothic.

Although the plans are all more or less alike, they can be roughly divided into two classes—those with seats in the aisles and those without.

The winning design, by Mr. W. A. Pite, is one of those which shows seats in the aisles. It has a comparatively narrow nave with central gangway, from which the seats are continued into the wide aisles with side passageways against the walls. The general arrangements are on the lines suggested by the conditions, and appear to be well thought out. A special feature, which should give

a pleasing result, is created at the west end, where the font and the two entrance doors are treated as a baptistry or narthex. The interior effect should, we think, be good, though we are not quite sure about the height of the aisles, kept low presumably to allow a good height to the clearstory. The chapel ceiling also appears perhaps a little inadequate, but this, if a defect, is a minor one which could easily be reconsidered in execution. The elevations are good and extremely simple without being too plain. Breadth of treatment has apparently been aimed at, and this effect is helped by a long unbroken roof. The cube is stated to be 266,706 ft. at 6d.=6,667*l*. The whole design seems simple, pleasing, and practical, and should work out well and prove satisfactory.

No. 1, by Sir Arthur Blomfield & Sons, is a very reasonable plan. The building allows more space between the east end and the adjoining houses, giving a view of the mission hall. The arrangement of the west end as a sort of narthex seems good; the elevations are simple, but perhaps a little old-fashioned in sentiment. Cowborough stocks with red quoins, and a few stone off-sets, and a red-tiled roof are suggested. The cube amounts to 237,921 cubic ft., and the cost is 7,000*l*.

No. 2, by Messrs. M. B. & M. R. S. Adams, consists of three alternative designs. Considering the restricted scope of the scheme, this hardly seems worth while. The various alternatives do not appear to differ enough in idea to justify the amount of labour. Probably the authors would have done more justice to themselves if they had concentrated on a single one. They are all pleasing in design, and aim at breadth of effect. The cube of the first is 226,671 cubic ft., and the cost 6,468*l*.

No. 3, by Mr. J. S. Alder, is not quite so simple as the others in its general treatment. The drawings seem to give the suggestion of a pleasant but more expensive class of building. Seats are shown in wide, lofty aisles, with no clearstory over. The bell turret at the west end appears to create an awkward and useless feature on the plan. The organ-chamber is made a special feature on the south side of the chancel, as desired. Beyond the organ-chamber and outside the main structure are the vestries, treated more as outbuildings.

No. 4, by Messrs. Hall-Jones & Cummings, show seats in one aisle only. The narrow south aisle is a passageway, while the wider north aisle is continued eastward to form the chapel. Narrow choir aisles are inserted on either side of the chancel, with entrances at the east end serving chapel and vestries. This design also shows no clearstory.

No. 5, by Messrs. Comyn & Durst, gives an alternative, which is perhaps the more interesting of the two. It is something of a departure from precedent, inspired by the domed churches of the South of France. The whole of the seats are in the nave, and the aisles are reduced to passageways. The wide space thus obtained forms two squares on plan, and is vaulted over in reinforced concrete. The elevations, however, follow more nearly the Gothic traditions. The cube is 300,000 ft., and the cost, without small tower, is estimated at 6,875*l*. It is a good attempt to deal with modern conditions and methods of construction.

No. 7, by Mr. Louis Blanc, shows a nave 35 ft. wide in the clear, with narrow aisles forming an ambulatory right round the church. But as his seating accommodation in the nave is not quite sufficient, he creates a small south transept, containing seventy seats, from which it would be impossible to see the altar; the pulpit and lectern, however, are well in view. The provision of this transept hardly seems to be a strong point in the design. It would, we think, have been better if the whole of the seats could have been provided in the nave. What does, however, appear to be a strong point is the excellent treatment of the chapel and north door with wide entrance vestibule.

In its general bulk and outline this design differs from most in being broader and in taking up more depth of site. While all the rest keep to the building line of the adjoining houses, this one projects the whole length of the chapel and entrance porch up to the limit of the site. Whatever practical advantages may be gained we are not sure that even if permitted by the local authorities this departure from the general building line of the street is to be commended.

The cubic contents are given as 198,546 ft., and the estimated cost is 6,950*l*.

THE CARPENTERS' HALL LECTURES:

DEVELOPMENT OF PLANNING.

THE tenth and concluding Carpenters' Hall lecture on the Arts Connected with Building was delivered on Wednesday last week by Mr. Gerald C. Horsley, President of the Architectural Association, on "Influences in the Development of Planning," Mr. John Hooke, Middle Warden, presiding.

The lecturer showed a large number of lantern slides, and in the course of his remarks he said:—

"The arrangements of the plan sets the key and decides the scale of the completed design; it is the anatomy of a building, and if the anatomy is carelessly designed and ill-proportioned, the result will be inartistic, a failure from the point of view of utility, and an addition of no interest or value to our land. Thorough training in planning is essential to an architectural student, who will find that his talents have as much scope for expression and development when brought to bear upon the design of a plan as upon that of the elevation or decoration of a building. A good plan must be more than merely convenient; to be worthy of being called architectural, it must show originality in its conception as well as beauty. Genius must dictate the arrangement and disposition of its parts. The two principal influences which affect the development of planning are, first, the personal influence of the designer or architect—that is the influence of the artist; and, second, the racial influence—that is of the manners and customs and modes of life adopted by the different races of the world. I propose to limit my remarks to a consideration of the planning of domestic buildings in the past, and at the present time in this country, with some comparison between our methods and those which obtain abroad. We English folk are descendants of a Northern race, and it can be proved that the planning of our domestic buildings has, during the passing of the centuries, possessed characteristics which are directly traceable to the customs of this Northern people. On the other hand, in the case of the inhabitants of France and Italy, it is possible to show that the planning of their domestic buildings has been largely dominated by the influence of their chief ancestors—the members of the great Latin races."

Having referred to the Pictish "Broch," the lecturer said:—"The prototype of the English house is the home of our Saxon ancestors, the ancient hall or halle, containing the open hearth for the health-giving fire. It is remarkable that the rulers of our island before the coming of the Saxons, namely, the Romans, although they built largely themselves, should have exerted so little influence on our traditions of building. The destructive Danes laid waste the Roman buildings, and comparatively few were left to instruct our more immediate ancestors, the Saxons.

On the Continent of Europe, on the other hand, despite the successful invasions of the Northmen, the old Roman domination in art persisted; and when the Normans attacked England in the XIth century and subdued its Saxon inhabitants they initiated the building of the Norman keep, an art doubtless acquired by them from the ancient Roman tradition. But the designs of the Normans did not oust the hall from its position of supremacy. On the contrary, the halls built by the Normans in connexion with their castles were very notable; the one at Oakham is a well-known example. The Sagas tell us that the larger Saxon halls were built of timber and were planned like a church, with nave, columns, and aisles. The hall at Oakham, and other examples of Norman work, show this early type translated into stone. The similarity of the hall to the church is an instance of that kinship which exists in all living periods of art between forms of building. In spite of the beauty of their halls, the art of planning in the time of the Normans was crude.

Alexander Necham, or Nequam, a schoolmaster of St. Albans, in the end of the XIIth century, and afterwards Abbot of Cirencester, describes in his treatise, "De Nominibus Utensilium," the various parts of a house in his day. He speaks of the hall, the private or bedchamber, the kitchen, the larder, the sewery, and the cellar. Of such rooms, of course, the hall was the chief apartment, and Necham's description represents the type of house which flourished with but slight changes and developments until the opening years of the XVth century.

The Saxon house plan was a single hall, built of wood, with a separate apartment for the women. In the latter centuries of the Saxon domination in England their buildings were often of stone in the Roman or Romanesque manner—"more Romano"—and frequently these houses were built by hired artificers from the Continent. No kitchens were needed in these early days, for the same fire which warmed the inhabitants of the house sufficed to cook the food.

These buildings were of one story. They were often connected with covered ways, and the old Saxon manuscripts frequently show delightful pictures of them surrounded by a wall, with their roofs just appearing above it."

Having referred to Stokesay Castle and Haddon Hall, the lecturer said—

"It is in the XVth century that we observe for the first time clearly the combination of the two influences on planning to which I referred at the outset. Hitherto the influence of the race has been more dominant than the personal influence of the artist. In the XVth century we see a greater expression of the artistic power of the designer. Warkworth Castle, in Northumberland, is an example of an attempt at a symmetrical plan, though the result is not altogether successful; it is notable because the principal rooms are on the first floor, a practice more French than English; one also adopted by the builders of Scotch houses, and a method of design borrowed, no doubt, from abroad.

It is interesting to see how the earlier influence remains in the plan of South Wingfield, in Derbyshire, though of precisely the same date as Warkworth, namely, 1435. Another house of much interest built exactly at this date is the famous Jacques Cœur's house, at Bourges, in France. A glance at the plan will show how far advanced the French were in house planning at this time.

Though the Renaissance was at hand in the XVIth century, and our house-builders were to learn much from Italy and France, the old English house plan of hall, screens, buttery, and kitchens, solar and private rooms, died hard. For 400 years our abbeys, our colleges, and our houses had been built on this plan.

The plan of Hengrave Hall, in Suffolk, marks the change from the house of the South Wingfield type to the Renaissance house. It was built in 1538, exactly 100 years after South Wingfield. More than a trace of the orderliness and symmetry which in this and the coming century were to be the distinguishing feature of our house plans is visible in this interesting building. The stable government of the XVIth century made fortified houses no longer a necessity. Artists from Italy and France instructed our house-builders in planning spacious courtyards and fair galleries.

The plans made by John Thorpe and Smithson in the reigns of Queen Elizabeth and James I. illustrate the increasing power of the designer in house planning, and the change in customs and manners of the house-dwellers. To eat, drink, and even sleep in the hall was no longer the custom; rooms must be provided for dining and sleeping; handsome galleries and withdrawing-rooms were called for by the craving for greater comfort. The ancient hall becomes now a fine vestibule, a means of entry to spacious staircase halls, with stairs of great magnificence leading to beautiful apartments on the first floor.

During the XVIIth century the movement in art, which had begun in the later years of the XVIth century, culminated in the full development of the Renaissance, and drew many young Englishmen to Italy for the purpose of studying the buildings of that country. Many were sent by wealthy noblemen, and records of these travellers exist. One there was who went on his own initiative, and who, on his return to England, altered the whole course of English domestic architecture. This man was Inigo Jones.

During his residence in Italy Jones studied chiefly the works of Palladio: and the principles in planning and design which he introduced into

England and which he carried out himself in actual buildings were Palladio's, and naturally the course of house planning in this country was much affected thereby. With Inigo Jones the personal influence of the architect became a dominant feature, not only in the conception of the design, but in the carrying out of the whole building. Stoke Park is an example of the Palladian style. It was the first house to be built in this country with curved wings, and a type of plan which for houses of a large size lasted well into the XVIIIth century. The general scheme in plans of this form consisted of fine reception-rooms in the central block, and the kitchen offices in one of the wings, and the stabling in the other; many a stately house was built on these lines, such as Buckingham House, Moor Park, Ditchley, Chesterfield House, and Houghton.

The chief points to notice in these and other house plans of this period are—(1) That the hall has become a mere vestibule to more stately apartments; (2) the large "saloon" has taken the place of the hall; (3) the kitchen and service-rooms are either entirely on the ground floor, thus leaving the first floor, or *piano nobile*, for the principal rooms; or they are placed in a side wing, as at Stoke Park, an arrangement which is obviously unsatisfactory, as the separation of the dining-room from the kitchen is too pronounced. A simpler and a more workable plan, also by Inigo Jones, is that of Amblesbury, a type which endured for very many years. The main feature on the ground floor is the hall; above it on the first floor is the large room or saloon, the height of two stories. The large porch in front of the entrance hall, as I must now call it, formed the base of a fine open portico above. The arrangement of the back staircase within the principal stair is a clever feature, borrowed from the Italians, but we shall see in later plans that a more convenient position was found for this necessary part of a house.

We have also to notice in these house plans of the XVIIth and XVIIIth centuries that the principal staircase is not quite so important a feature as in the spacious days of Queen Elizabeth, which, as we have seen it, led up to the long gallery, the chapel, and the with-drawing-room. In passing it is interesting to notice the new development making itself felt in the plan of Aston Hall (1618-1635), which was built from the design of John Thorpe at the same time that Stoke Park was being designed.

A very interesting plan is Raynham, by Inigo Jones (1636), a symmetrical and convenient plan. Coleshill (1650) succeeds, and Thorpe, Hall by John Webb, Inigo Jones's assistant.

The following plans give some idea of what was being done in the latter half of the century in the days of Sir Christopher Wren and his successors:—Eltham House, 1660; Groom-bridge (ascribed to Sir C. Wren), 1660; Belton (ascribed to Sir C. Wren), 1689.

It is remarkable that these XVIIth and XVIIIth century plans were as noticeable for their general want of privacy as any plan dating from the days before John Thorpe. He, as we have seen in the plan of Beaufort House, under-stood the advantage of a corridor, from which the principal rooms could be entered; but the later designers adopted to the full the Italian fashion of building strings of rooms connected together by communicating doors. Sir Henry Wotton in the early years of the XVIIth century con-demned this practice, but it lingered on till the end of the XVIIIth century."

The lecturer then showed views of some Queen Anne and Georgian houses, and illustrations of the origin of the French or Continental type of town house. Proceeding, he said:—"We shall notice that the modern plan marks an advance in good arrangement of rooms, in comfort and in privacy, which is certainly amazing. It will, I think, be clear to my audience that the architect of to-day has learnt much from the plans of the past. He is mindful of the influence of the "hall"—the focus, as we have seen, of the old English family life—of the long gallery, the stately staircases, and noble entrance, and garden courts of the great days of Queen Elizabeth, the ordered symmetry and well-considered proportion which were the principal patterns of the house plans of the later English Renaissance.

These form the basis of this art, while the reasonable and sensible manner in which modern requirements and customs are met and provided for indicate the progressive develop-ment of house planning in the present day."

ENGINEERING SOCIETIES.

Institute of Sanitary Engineers.

The Examination Board of this Institute, under the lead of their Chairman, Professor Henry Adams, M.Inst.C.E., recently sub-mitted to the Council of the Institute a report recommending the reorganisation of their examinations upon a broader basis. The Council has now adopted the report, a new syllabus has been drawn up, and the Board of Examiners has been augmented. The new scheme will be in working order for the next examinations to be held in May, and particulars will gladly be forwarded by the Secretary upon request addressed to the offices, 120-122, Victoria-street, Westminster, S.W.

The Society of Engineers (Incorporated).

The following is an abstract of a paper on "Ligno-Concrete," by Mr. Gerald O. Case, read on Monday, April 1, at the Institution of Electrical Engineers:—In the introductory remarks, the author refers to the use in America and Australia of concrete in combination with timber, and points out that, while the concrete effectively preserves the timber, it is not used to the greatest advantage. The object of the author's investigations was to ascertain if it were possible to reinforce concrete with timber rods. Roughly speaking, steel is about eight or nine times stronger than timber, but ten to fifteen times as expensive. The efficiency of timber as a reinforcing material depends on whether there is sufficient adhesion between the timber and the concrete, and whether the difficulties of the absorption of moisture by the timber from the wet concrete, and the splitting the latter can be overcome.

The paper describes the experiments made by the author to ascertain (*a*) the amount of water absorbed by eighteen kinds of timber immersed in fresh water, along the grain and through the end grain respectively; (*b*) the relative absorption by the timber of fresh and sea water in the same period; (*c*) the relative amount of water absorbed by timber embedded in 6 to 1 concrete and neat cement blocks; (*d*) the effect of applying wood preservative, creosote, varnish, etc., to the timber before insertion in the concrete or cement blocks; (*e*) the effect on the adhesion between the timber and the concrete of soaking the rods before insertion. Examples are given to show that concrete effectively preserves timber embedded in it.

Particulars are given of the construction of twenty-five concrete beams reinforced by timber rods. Three ligno-concrete beams, 8 in. deep by 4 in. wide, were tested with a central load on a 4-ft. span; the average ultimate load producing fracture about 3 tons. The results of these tests are compared with the tests on ferro-concrete beams recorded by Mr. E. Marburg in the *Proceedings* of the American Society for Testing Materials (1904, Vol. IV.). It appears that for the same ultimate strength of beam it is necessary to use 9 per cent. of sectional area of pitch-pine tensile reinforcements as against 1 per cent. steel reinforcements. A comparison of the prices of steel and pitch-pine shows a saving in favour of ligno-concrete.

As the author points out, in cases where more than about 1·2 per cent. of steel reinforcement is required ligno-concrete cannot compete with ferro-concrete, because the required size of the timber bars would be too large for convenient use. There appears, however, to be a big field for it for use in constructing bungalows, buildings for small holdings, floors, piles, posts, fencing, coast and river works, etc. It has already been used for making fence posts and for building a short length of sea wall. The ligno-concrete fence-posts costs about 2s. per cube foot. They are about 20 per cent. cheaper than creosoted deal, and about 40 per cent. cheaper than English oak. In Canada, four bungalows have been built with ligno-concrete slabs, and the Pacific Coast Construction Company, of Victoria, British Columbia, now have contracts in hand for twenty buildings in which this material is to be used.

BOOK RECEIVED.

THE STEEL SQUARE AND ITS USES SIMPLY EXPLAINED. (London: Cassell & Co., Ltd. 2s. net.)

GENERAL NEWS.

Professional Announcement.

Mr. R. W. Collier, F.R.I.B.A., has removed from 37, Lincoln's Inn-fields, W.C., to 5, Lancaster-place, Strand. Telephone, 10427 Central.

The Church of the Annunciation, St. Marylebone.

Plans have been made for the re-erection of this church, formerly known as Quebec Chapel, in Bryanston-street, which was remodelled and greatly improved by Sir Arthur Blomfield forty-five years ago. Mr. W. J. Tapper is the architect to the vicar and churchwardens for the proposed work.

Commendatore Walter Crane.

The portrait in oils of himself, which the Italian Government has invited Com-mendatore Walter Crane, R.W.S., to paint for the Uffizi Gallery, Florence, is now com-pleted, and it will be shown, together with a selection of drawings and water-colours by this artist, at the Leicester Galleries, Leicester-square, on and after Saturday, 13th inst.

Campanile, St. Mark's, Venice.

On St. Mark's Day, the 25th of this month, will be opened the new campanile of St. Mark's, Venice. It is now ten years since the tower collapsed, its foundations having been undermined for centuries by the waters of the lagoons. During the ten years of restoration the work of Buono has been faithfully reproduced. A few months back saw the completion of the main structure, and there remained only the task of re-placing the golden archangel on the pinnacle of the pyramid which crowns the tower. This figure is the work of Munavetti, and is made of brass, the head, arms, and feet being of massive bronze. The lily which the archangel holds in his hand measures 5 ft. 9 in. in length.

International Congress of Archæology, Rome.

In accordance with the decision of the second International Congress of Archæology, held at Cairo in the spring of 1909, the third Congress will take place at Rome from October 9 to 16, under the Presi-dency of Commendatore Corrado Ricci, Director-General of Antiquities and Fine Arts. There will be ten sections as follows:—1. Prehistoric Archæology; 2. Oriental Archæology; 3. Prehellenic Archæ-ology; 4. Italic and Etruscan Archæology; 5. History of Classical Art; 6. Greek and Roman Antiquities; 7. Epigraphy and the Study of Papyri; 8. Numismatics; 9. Myth-ology and the Study of Religions; 10. Ancient Topography; 11. Christian Archæology; 12. Organisation of Archæological Studies. Those who desire to read papers or to bring pro-posals before the Congress are requested to communicate with the Secretary-General, Professor Lucio Mariani (to whom subscrip-tions for membership, 20 lire, should also be sent), Direzione Generale di Antichità e Belle Arti, 11, Piazza Venezia, Rome. It is hoped that it will be possible to keep the Archæological Exhibition open until the period of the Congress. Two special excur-sions will be organised in connexion with the Congress—one to Sardinia, the other to Magna Græcia and Sicily.

International Congress of Art, Rome.

The tenth International Congress for the History of Art will be held immediately after the Archæological Congress, from October 16 to 21 (in accordance with the decision of the ninth Congress, held at Munich in 1909 under the Presidency of Professor Adolfe Venturi. The discussions will deal with subjects of general interest in the history of art, and more especially with the relations between the art of Italy and that of other nations. The sections will deal respectively with Christian, Roman-esque, Gothic, and Renaissance, and Modern Art; while a fifth section will discuss problems connected with organisation and methods of co-operation between workers of different countries. The cost of tickets of membership is 25 lire, but members may obtain tickets for ladies of their family for 10 lire. Visits have been arranged to the principal private collections of Rome and

its neighbourhood, for which, as a rule, permission can only be obtained with great difficulty. Further information can be obtained from the Secretary-General, Dr. Roberto Papini, Via Fabio Massimo, 60, Rome. It is requested that those who may desire to bring communications before the Congress will inform him without delay.

Sanitary Engineering Exhibition, Milan.

A Sanitary Engineering Exhibition, under the patronage of the Royal Italian Society of Hygiene, will be held from April to July at Milan, Italy. The exhibition is "to encourage and reward every progressive show in the field of practical hygiene as applied to civil engineering and architecture; to bring before interested parties whatever has been done in recent times in Italy and abroad and the best in this branch; to constitute a first collection of materials, samples, models, and drawings with the ultimate object of transforming the present temporary show into a permanent sanitary museum under the patronage of the Royal Italian Society of Hygiene, to be associated to the existing Museo di Igiene Sapolini." There will be an exhibition of materials, samples, models, drawings, projects, photos, pamphlets, books, etc. The programme sets out the following "groups" covering the interests of the exhibition:—A (Historical show)—History, Description, Legislation, and General Propaganda; B—Hygiene of Modern Cities and Roads; C—Modern Sanitation Town Dwelling; D—Water Supply; E—Sewers, Modern Refuse Disposal and Treatment—Destruction of House and Road Sweepings; F—Lighting; G—Ventilators, Ozonisers, Exhausters; H—Hygiene of Workshops, Quarries, Mines; I—Hygiene as Applied to Agriculture; L—Slaughterhouses, Dairies, Markets, Bakeries; M—Schools, Children's Gardens, Colleges; N—Gymnasiums, Sporting Places, Theatres, and Meeting-rooms; O—Prisons and Barracks; P—Hospitals, Isolation Hospitals, Lunatic Asylums, Sanatories, Disinfection Apparatuses; Q—Baths and Washhouses; R—Cemeteries; S—Climatic Stations, Summer and Winter, Villas, Hotels, Sanatories, Alpine Colonies, Sea Hospitals; and T—Sanitary Transportation. Gold, silver, and bronze medals will be awarded.

Conversion of a West London Market.

A scheme is formulated to convert Portman Market, in Church-street, Marylebone, into a motor-car garage and depôt. The existing buildings were erected in 1900-1, at a cost of about 46,000*l.*, for Portman Market, Ltd., after the plans and designs of Mr. H. T. Gunton, of the firm of Messrs. Gordon, Lowther, & Gunton, and extend over an area of 43,500 ft. superficial. The company was formed to take a lease of the site from Lord Portman for a term of fifty-eight years from Lady Day, 1899, at a ground rent, after the first two years, of 1,030*l.* per annum. The vendor, Mr. John Baker, had fixed the purchase price of his lease and market rights at 40,000*l.* The premises were opened on April 18, 1901, for the sale of meat, fish, and vegetables; but the market was offered for sale in the autumn of the next year. It was reopened in August, 1905, for a wholesale trade in fruits, flowers, vegetables, and other garden produce. In October, 1906, the property, having a rateable value of 800*l.* yearly, was again offered for sale at auction. Portman Market was established upon the present site—on Viscount Portman's Lylleston estate—in pursuance of the Act 11 Geo. IV., cap. 71, additional powers being obtained under an amending Act 2 and 3 William IV., cap. 113. The buildings comprise 175 stalls and stands divided by diagonal and straight avenues, a large central cold storage beneath the dome, and a separate installation of electric light, and thirty shops in ranged terraces along the main frontage, 256 ft., to Church-street, and along three other streets, in close proximity to the goods terminus of the Great Central Railway.

Harrow Aerodrome.

The National Aviation Company, Ltd., have acquired an estate of more than 350 acres, between Harrow and Ruislip, which is a portion of the area that is covered by the Ruislip Manor and town-planning scheme. Northolt Junction Station on the Great Western and Great Central lines adjoins the south-west corner of the estate; to the north are the Eastcote and South Harrow stations of the Metropolitan Railway. The proposed plans provide for an aviation ground of 256 acres adjacent to the junction station, with storage hangars and workshops, and, on the site of the Bourne Farm House, a clubhouse, with restaurant, cricket ground, lawn tennis courts, etc. Surrounding the aviation ground to the south and east will be plotted a boulevard, 60 ft. wide, with shops, houses, and villas, so planned as to afford large open-air spaces, separate house gardens, and recreation grounds.

Open Spaces and Recreation Grounds.

A committee is appointed to secure the vesting in the National Trust of the summit of Finchampstead Ridges, portion of the Bear Wood Estates, Berks, which are included in the contemplated sale of the Sandhurst Lodge property near Wokingham; the Ridges consist of 143 acres of forest land commanding extensive prospects in Berkshire, Hampshire, and Surrey. It is also proposed to acquire on behalf of the National Trust the manorial rights of Minchinhampton Common, lying near Amberley and Woodchester, on the southern verge of the Cotswolds, in respect of which Major Ricardo, lord of the manor, has consented to give an option of purchase until May 1 next for 1,250*l.* (about 2*l.* per acre), a sum that represents the income now derived from the quarries; on the hill are extensive earthworks enclosing pit dwellings. This beautiful spot—the "Enderley Flat" of "John Halifax, Gentleman"—lies on the south-eastern slopes of the Cotswolds, near Strood and the Woodchester Valley. The place takes its name from the Minchin nuns of the church that appertained to the Abbaye aux Dames of Caen, who settled there *temp.* Henry III.; but upon the surrender by alien monasteries the nunnery passed to Sion in Middlesex. In the reign of Henry VIII. Alice de Hampton gave a grant for pasturage of the common land and Amberley Bank to the poor villagers; the manorial rights extend over about 600 acres. The Trust have just obtained, by bequest of the late Mr. G. H. Verrall, of Newmarket, a tract of land in Wicken Fen, near Upware, Cambs, which has suffered but little change since British times, and is the habitat of plants and insects found nowhere else in England. The Wandsworth Borough Council have agreed, conditionally, to contribute 3,000*l.* to the purchase, for 12,000*l.*, of 20 acres which belong to the Royal Patriotic Asylum, for an enlargement of Wandsworth Common. A sum of about 2,500*l.* is needed to secure a beautiful expanse of meadow and garden land which adjoins Valentine's Park, Ilford, and is now owned by the Ilford Garden Suburb undertaking. Sir Thomas F. Buxton has conveyed to the Conservators of Epping Forest some land on the approach to Copped Hall Green, and the lake at Wanstead Flats has been enlarged and improved.

London in the Reign of Elizabeth.

Amongst the exhibits that will be constructed for the show of "Shakespeare's England" to be opened on May 11 in the Earl's Court grounds are full-sized models of Staple Inn, the Globe Theatre, Bankside, and the Mermaid Tavern, in Bread-street, Cheapside, celebrated in verse by Francis Beaumont and Ben Jonson; Mr. E. Lutyens will superintend the preparation of the models of St. Mary's and Ford's Hospital, Coventry, Windsor cloisters, and Ledbury Hall. The Elizabethan Literary Society have formulated a scheme for the preparation of a map of London as in the days of Queen Elizabeth. It is intended to mark upon the map sites, places, and buildings which are associated with the literary and social history of the town during the period of about eighty years that ended with the death of Massinger in 1640, or which possess other interest, and to plot the lines of the streets as contrasted with those of modern times.

Old Houses in Haslemere.

Under this heading Sir Robert Hunter calls attention in the *Times* to a group of old houses in the little town of Haslemere and the threatened destruction of them. The London County and Westminster Bank, it appears, find the premises too small. Mr. Thackeray Turner, Chairman of Committee, the Society for the Protection of Ancient Buildings, in the course of a reply to Sir Robert Hunter, says:—

"If the two projecting gables which form the centre of the group of old cottages are cleared away what remains will be of but small value. But I have studied the situation carefully, and I am convinced that a skilful architect could perfectly well meet the requirements of the bank by pulling down the portion of the buildings next the hotel, which are of no great value, and retaining the projecting wing with its two gables and the roof and old chimney behind them. He could then build upon the cleared site a good bank frontage, utilising the space on the ground floor under the projecting gables and making the new front of brick, keeping it quiet and in harmony with the old work."

Southampton Bargate.

The Estates Committee of Southampton Corporation have now received a detailed report on the subject of the Bargate from the Society for the Protection of Ancient Buildings. Mr. W. Weir, who makes the report, suggests that the three corbels which support the projecting portion of the parapet are in danger of breaking off, though in good repair, owing to there being no other support. Various suggestions of minor importance are made which the Committee recommend should be carried out where advisable. The Borough Engineer also reports on the matter, and as the result the Committee recommend the renewal of the three top corbels in Portland stone.—*Southern Echo.*

Road Board Specifications.

Representations having been made to the Road Board as to the difficulty at the present time of obtaining from gas works in and about London and in some other districts tar or pitch which complies in percentage of free carbon with the Road Board Specifications for Pitch and for Tar No. 1 and Tar No. 2, the Board, as a temporary measure, in order to allow time for arrangements to be made for the supply of tar and pitch containing no more than the specified percentages of free carbon, have, on the advice of their Advisory Engineering Committee, decided to modify the percentages of free carbon as follows:—In Tar No. 1 (Specification No. 4) the percentage should not exceed 20 per cent. In Tar No. 2 (Specification No. 5) the percentage should not exceed 21 per cent. In Pitch (Specification No. 6) the percentage should not exceed 31 per cent. These modifications will be operative until December 31, 1913. It should be distinctly understood, however, in contracting for the purchase of tar or pitch that the value of the material for road purposes lessens with the increase of the proportion of free carbon which it contains. A fair estimate would be that each 1 per cent. of free carbon in excess of the percentages mentioned in Road Board Specifications 4, 5, and 6 lessens the value to the extent of from 5 per cent. to 7½ per cent. of the price.

The City of London Year-Book and Directory.

The 1912 edition of this work, which is a guide to the municipal, commercial, and social life of the City, contains much valuable information. The Municipal section gives the names of the members of the Corporation, London County Council, Livery Companies, and other bodies. There is a list of the various City churches with names of the clergy; of the clubs and social institutions, hospitals, etc. Altogether the work forms a very useful and interesting book. It is published by Messrs. W. H. & L. Collingridge, Aldersgate-street, E.C.

PUBLIC WORKS SCHEME, CHILE.

With reference to the notice on p. 231 of the *Board of Trade Journal* of February 1 relative to a Chilian Government Bill for the construction of railways, hydraulic and irrigation works, and public buildings in Chile during the ten years 1912-21, it is notified that full particulars of the scheme have now been received from H.M. Legation at Santiago. H.M. Legation point out, however, that it is considered unlikely that the proposals will be accepted by Congress. The particulars referred to above (in Spanish) may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

EDITORIAL SUMMARY.

The leading article, illustrated, is entitled "A Papal Pleasure House." Some illustration plates of the Villa Pia, the house in question, are also given this week.

In "Notes" columns (p. 388) will be found observations on: "Competition Ethics Again"; "The Strike"; "Architecture and Local Patriotism"; "The Question of Acoustics"; "Monuments in Our Parks."

A notice of the Royal Society of British Artists' Spring Exhibition appears on p. 389.

A meeting of the Royal Institute of British Architects was held on Monday, when Mr. E. T. Hall read a paper on "Art Museums and Picture Galleries." Our report is given on p. 389.

Some notes on a recent competition for St. Peter's Church, Acton, appear on p. 391.

A note of the sixth visit of the Architectural Association this year is given on p. 391. The building visited was the Wesleyan Church House, Westminster.

The tenth and concluding lecture of the series of Carpenters' Hall lectures on the Arts Connected with Building was delivered on Wednesday last week by Mr. Gerald Horsley on "Influences in the Development of Planning" (p. 392).

In Correspondence columns (p. 395) are letters on: "Spiral Pillars"; "London: Its New Royal Museum and New 'London Society.'"

The Monthly Illustrated Review of Civic Design (p. 397) includes: "The Prestatyn Estate Competition"; "Town Planning"; "Imperial London"; "The Wellcome Tropical Research Laboratories"; "*The Town Planning Review*"; and Notes.

The Building Trade Section (p. 402) includes: "The Ideal Builder"; "Land Valuation"; "The London Association of Master Decorators"; "Applications under the London Building Acts."

An article on "The National Physical Laboratory" is given on p. 405.

An article on The International Smoke Abatement Exhibition, Royal Agricultural Hall, appears this week on p. 405.

Book Reviews (p. 406) include "School Planning"; "History of Bridge Engineering"; "Practical Sewerage and Sewage Disposal."

In "Legal Column" (p. 407) are notes on: "Surveyors' Fees"; "Trade Union Law"; "Powers of Corporations—Municipal Trading"; "Extraordinary Traffic on Highways"; "Vendor and Purchaser."

Our Law Reports (p. 408) include: "Stronge and Others *v.* Beadel, Wood, & Co."; "Reading Industrial Co-operative Society, Ltd. *v.* Palmer"; "Tolley *v.* Lichwitz & Co."

MEETINGS.

THURSDAY, APRIL 11.

Concrete Institute.—Ordinary general meeting. 8 p.m.
Society of Architects.—8 p.m.

SATURDAY, APRIL 13.

Edinburgh Architectural Association.—Visits to (1) Holyrood Palace and Chapel; (2) Thistle Chapel.

ARCHITECTURAL SOCIETIES.

Nottingham Architectural Society.

On the 26th ult. this Society concluded their winter programme with an informal smoking concert at Calvert's Café. There was a record attendance.

The principal designs sent in competition during the session were on exhibition, and, in addition, Mr. Arthur Marshall, A.R.I.B.A., lent over forty of his own pencil drawings and etchings for the inspection of the members.

The drawings are all unique specimens of artistic composition, and the quality and texture of the drawing are very beautiful, and the privilege of inspecting them was greatly appreciated by the large number of members and friends present.

The Society offer prizes annually for the best set of architectural drawings designed by the students.

In presenting the prizes to the successful competitors Mr. Robert Evans, F.R.I.B.A., the President, announced that it was a dead heat for the first prize, and the student who secured the second prize was very few points behind them.

The awards were as follows:—Bracketed first, Messrs. Hasledine and Pratt; second, Mr. Beaverstock. Mr. Evans announced that he would give a prize to the student who submitted the best sketch-book next session.

At the request of the President, Mr. Marshall gave an interesting brief description of his drawings, and at the same time described his own methods of working and the materials he used.

On the motion of Mr. E. R. Sutton, a hearty vote of thanks was accorded to Mr. Walker and the artists who had assisted him, and to Mr. F. M. Royle, the Hon. Secretary, for arranging such a successful evening.

The annual meeting and election of officers will be held on Tuesday, April 23.

CORRESPONDENCE.

London: Its New Royal Museum and New "London Society."

SIR,—Besides its vast size, London is unique in another respect. Though the largest city in the world its citizens take no pride in being citizens even of the metropolis of the Empire in the manner of those of Paris, New York, or Berlin. They do not go about proclaiming themselves to be Londoners, and if they have to confess to it they do it in a deprecating way, not wanting to be classed as Cockneys. No one even claims to be a Middlesex man, like those born more fortunately in other counties. There is no *esprit de corps* or bond of union between us, and to be known as a Londoner does not particularly help a professional or commercial man. Neither is it a recommendation to the operative or craftsman to be bred and born in London, though it sets the fashions, while it is no benefit to be born a Londoner; as matters go, it may be a positive handicap. Take the case of a musician or singer with a way to make in the world. Were he or she Scotch, Irish, or Welsh, Canadian or Australian, sympathetic compatriots are to be found everywhere ready to foregather. Even the Devonian, Salopian, Yorkshireman, or Lancastrian meet with *camaraderie* and fellowship entirely denied to Londoners. The causes are more easy to explain than to remedy, and for this reason, if for no other, both the Royal London Museum and the London Society should be heartily welcomed as steps in the right direction. Without visible funds the establishment of the former on any commensurate scale appeared a hopeless undertaking, but, thanks to the talented and indefatigable curator, Mr. Guy Laking, it has become a reality in an incredibly short space of time. The case is really remarkable as it was heralded by no preliminary agitation; there was already a museum in the Guildhall in existence, and all the unique and valuable objects found in London during previous centuries were safely housed in the great metropolitan museums, which cannot be called on to disgorge them.

The London Society has still to consolidate into fact, against difficulties even more insurmountable. Though numbers join it, views must be hopelessly divergent, and only the most uncommon tact, energy, enthusiasm, perseverance, and unanimity on the part of the promoters can make active and effective steps in the direction of great London improvements possible.

J. STARKIE GARDNER.

Spiral Pillars.

SIR,—There was an interesting list of spiral pillars in the *Builder* lately. They seem to have come from the East. May I suggest that perhaps those mysterious pillars called Jachin and Boaz, in Solomon's Temple, were spiral columns? The synagogues at Rotterdam, Vienna, two churches in Toledo, formerly synagogues, Nabludon, Casimir, Teheran, have spirals in them. Also the Armenian church at Tortoon and the throne at Teheran. A yad (pointer) used by the synagogue reader has a spiral stem. In the Cluny Museum is an ancient metal case to hold the Law, with spirals at the four angles. At New York is a breastplate for the scroll of the Law, having two spirals. The almenar (reading pew) of the Casimir Synagogue has its dome supported by spirals. A Jewish marriage contract, 1659, has spirally-wreathed columns. A Jewish Bible of Amsterdam, 1679, has Moses and Aaron between spirals on the title. Some of these are very old. Engravings of them are in the "Jewish Encyclopædia."

Being at Jerusalem in 1908, I visited the Holy Sepulchre, and the front of the Tomb chapel has four spiral columns. The first was built by Constantine, A.D. 326, and probably the later chapels reproduce the general features. Bartlett has engraved it ("Walks About Jerusalem"). At the Victoria and Albert Museum is the large cartoon by Raphael of the Beautiful Gate of the Temple, and the pillars are spiral. Hanner mentions that the Saracenic gateway of the Haram area has spiral columns, called Bab es Sileleh (gate of chains), of the XIIIth century, but founded on a Jewish gateway, whose pavement remains ("Walks About Jerusalem," 1910).

Sumner mentions seeing the mosque El Aksa, in the Temple area, built by Justinian, formerly called the Palace Porch or Temple of Solomon, and remarks:—"In many places pillars of twisted marble with graceful capitals are built into the walls, taken in all probability from the old Jewish Temple" ("Our Holiday in the East," 1887, p. 106).

And Hanner mentions that the Moslems of Jerusalem believe Solomon to have invented spiral columns (p. 221). In the Septuagint Jachin and Boaz are said to have "flutings" (3 Kings, vii., 15), and the spiral columns of Raphael have spiral flutings or grooves. In the mosque of Omar, in the Haram area, is a pulpit, flanked on either side with double-twisted columns.

These instances seem to show that spiral pillars came from the East, and connect them specially with the Jews, and the Arabs, the cousins and successors of the Jews in Jerusalem, copied them. And the Christians there may have found Jewish spirals among the *débris*, while tradition connects them with Solomon himself.

A. B. G.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held in the County Hall, Spring-gardens, S.W., on Tuesday, Lord Cheylesmore, Chairman, presiding.

LOANS.—The Finance Committee recommended and it was agreed to make a loan of 18,000*l.* to the Hammersmith Borough Council for street improvements, and to the Southwark Borough Council a loan of 4,456*l.* for electricity undertaking.

SCHOOL, KENNINGTON.—It is proposed to make various alterations at the St. Saviour's Salamanca School, Kennington, by providing internal office accommodation and an additional teachers' room.

VICTORIA-EMBANKMENT.—Repairs are to be carried out and tar macadam laid on the Victoria embankment at an estimated cost of 1,200*l.*

PAINTING, ETC., AT PARKS.—Various painting and tarring work and repairs are required at the several parks and gardens during the ensuing summer, and it is proposed to execute these works by direct employment of labour at a cost of about 4,508*l.*

THEATRES, ETC.—The Theatres and Music Halls Committee have approved the following drawings:—75, Balham High-road (Theatre de Luxe)—Proposals for improving the steppings in the balcony; Earl's-court Exhibition—Arrangement of proposed concert hall in the Queen's Palace; His Majesty's Theatre—Adaptation of certain rooms in the basement as property rooms; King's Hall, 83, Commercial-road, Stepney—Provision of a rewinding room; London Pavilion, Piccadilly-circus—Provision of a dressing-room; New Cross Empire—Adaptation as waiting-rooms of the stalls and circle bars and alterations to the cinematograph chamber; 225, Oxford-street (Cinema House)—Electric wiring of premises; Putney Hippodrome—Rearrangement of cinematograph chamber.

ILLUSTRATIONS.

The Villa Pia, Rome.

THE illustrations of this building are in connexion with the article which begins on page 385.

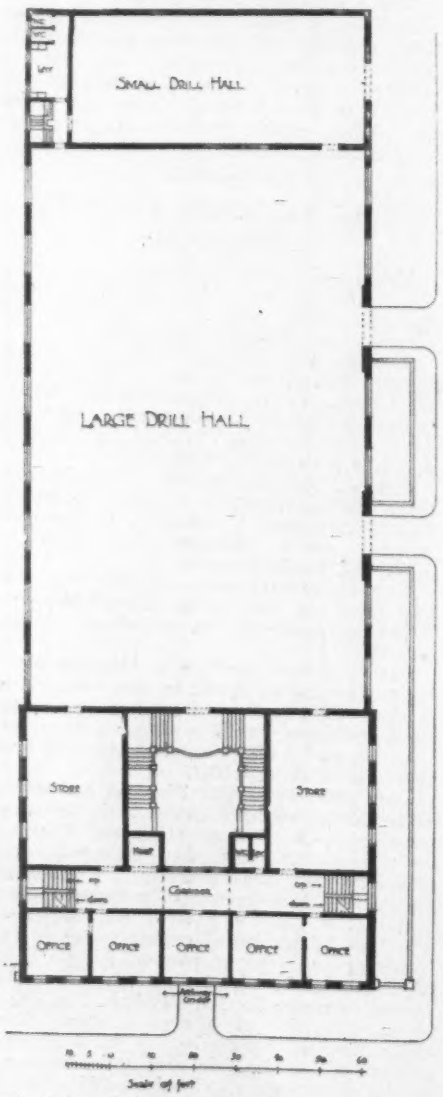
Territorial Force Headquarters.

THESE new premises for the Territorial Force Association of the County of Nottingham have been erected from the design and under the supervision of Messrs. Brewill & Baily, architects, Parliament-street, Nottingham.

The premises are erected to accommodate the modern requirements of the Territorial Force and form the centre for all Territorial Units in the City of Nottingham, which include one battery Royal Horse Artillery, the South Notts Hussars, the 7th Battn. (Robin Hood) Sherwood Foresters, one company Army Service Corps, and one company Mounted Brigade Field Ambulance, the accommodation being for the storage of guns, waggons, vehicles, clothing, and equipment, etc., for all arms; also drill halls, miniature rifle ranges, offices, lecture-rooms, together with caretaker's residence.

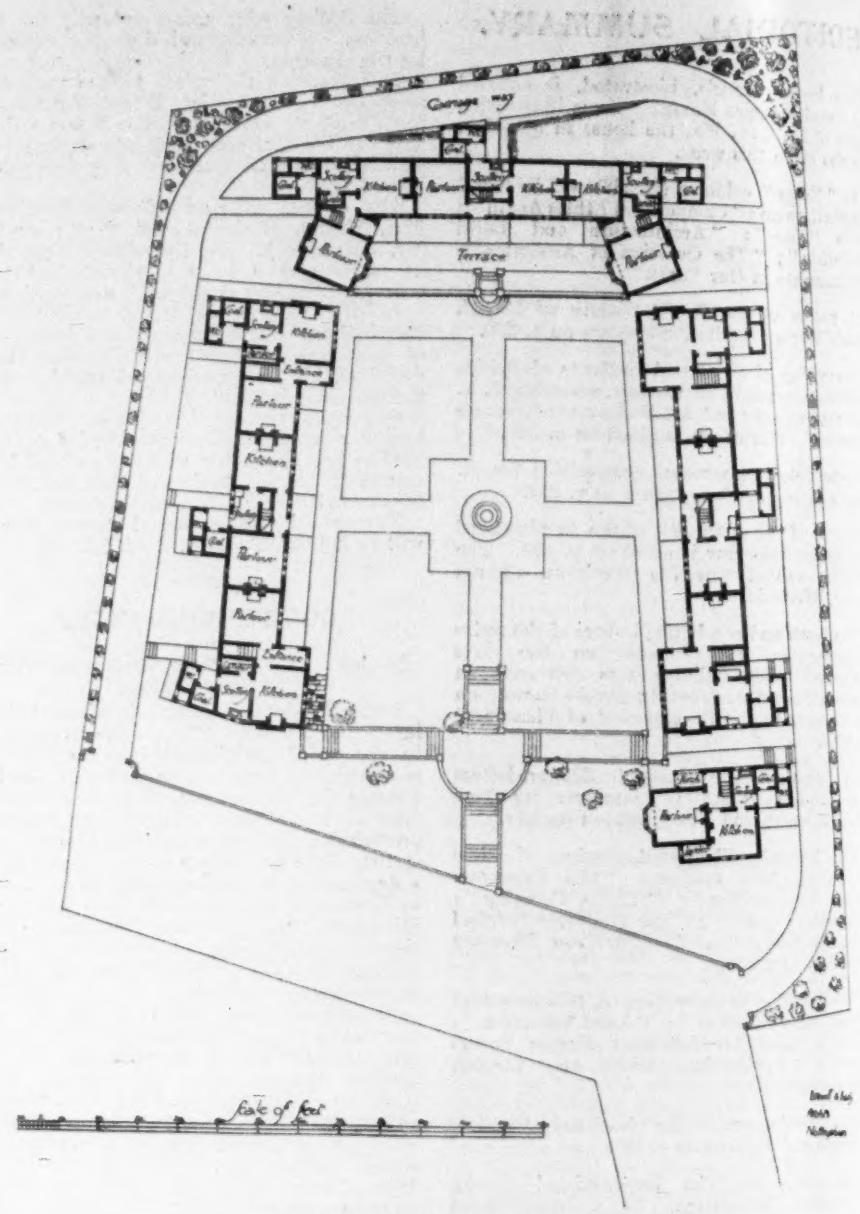
The building has been designed in the Georgian Period with a stone rusticated basement, having a central archway leading to the court from which the principal premises are entered; the upper portion is erected with red bricks, and the centre being relieved by stonework broken by pilasters, the parapet to the centre portion also being relieved by stone balusters.

The general contractors were Messrs. Wm. Maule & Co., the stonework has been executed by Messrs. Pask & Thorpe, and the plumbing by Messrs. Humphrey & Co., all of Nottingham. The whole of the floors are fireproof, and have been carried out by the Yorkshire Hennebique Contracting Company, Ltd. The roof to the main block is covered with Val de Travers asphalte, and the wrought-iron gates and railings have been made by Mr. Starkie Gardner; Messrs. Roger Lowe & Co. executing the wood block flooring.



Headquarters, Territorial Force Association, Nottingham.

Messrs. Brewill & Baily, FF.R.I.B.A., Architects.



Proposed Almshouses, Nottingham.

Messrs. Brewill & Baily, FF.R.I.B.A., Architects.

Proposed Almshouses, Nottingham.

THIS competition design was sent in by Messrs. Brewill & Baily, architects, for the erection of ten almshouses for the Wilkinson Smith Trust, at Nottingham.

It was proposed to erect the buildings in brick with stone dressings, the centre portion of the gables being constructed with half-timber in oak.

FIFTY YEARS AGO.

From the *Builder* of April 5, 1862.

Marc Isambard Brunel.

GENIUS is a fearful gift. Its pleasures and its triumphs are intense, but so are its pains and penalties. Men of genius dwell, as it were, in a world of their own, apart from the worldly life; and there are few among the gifted who can fully enjoy both worlds. Genius is not incompatible with worldly wisdom, but it too often aims at independence of it, and sorrows and difficulties are the sure result. The imprisonment of Brunel when his business at Battersea fell into confusion, much of the pecuniary shortcomings and shabby treatment of the Government, and many other worries and annoyances of his life are far too like those so frequently experienced throughout the lives of eminent men of genius to be altogether ascribable to the defects of others. The very daring of his own inventive faculty as in the case of the Thames Tunnel, and perhaps a hasty impatience of maturisation in details, must have aided not a little in bringing down upon his devoted head much grief and annoyance. He himself declared that if he had another work of a similar kind to do he would do it differently. This, it is true, might have been said by any other engineer. However, in future time, so far as regards the Thames Tunnel, although it may continue to be an interesting question how it was done, and criticisms as to better ways of doing it may still be urged, the great inquiry will be, who did it? And the name of Brunel, and the skill and daring of the work, will be all that posterity will care to think of in regard to it, at a time when the "Thames Tunnel Company," its immense outlays, and its failure as a commercial speculation, will be all forgotten.

COMPETITION NEWS.

Church of St. Peter, Acton Green.

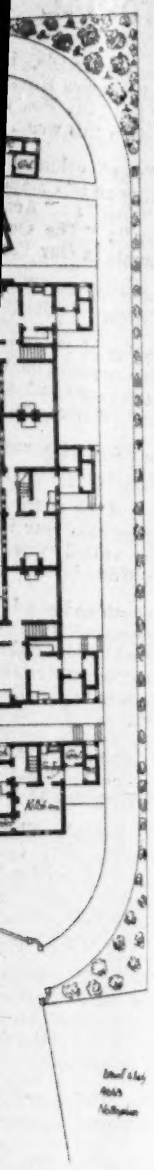
The first place in the competition for this Church has been awarded to Mr. W. A. Pite, F.R.I.B.A. All the designs submitted are described on page 391.

Harrow Public Offices.

In the competition for alterations to the public offices of the Harrow-on-the-Hill Urban District Council the first premiated design is announced to be by Mr. H. Prince, A.R.I.B.A., 19, Old-square, Lincoln's Inn, W.C. The second premiated design is by Mr. E. E. Fetch, A.R.I.B.A., 20, John-street, Adelphi, W.C., and the third by Mr. H. Burgess, Queen Anne's-chambers, Broadway, Westminster, S.W. The designs of Mr. S. Pointon Taylor, Harrow, and C. H. Rose, Wimbledon, were commended.

Prestatyn Estate.

An illustrated article on this competition begins on page 397.



e himself declared
work of a similar
differently. This,
said by any other
uture time, so far
Tunnel, although
teresting question
cisms as to better
ill be urged, the
did it? And the
kill and daring of
posterity will care
, at a time when
Company," its
ailure as a com-
all forgotten.

NEWS.

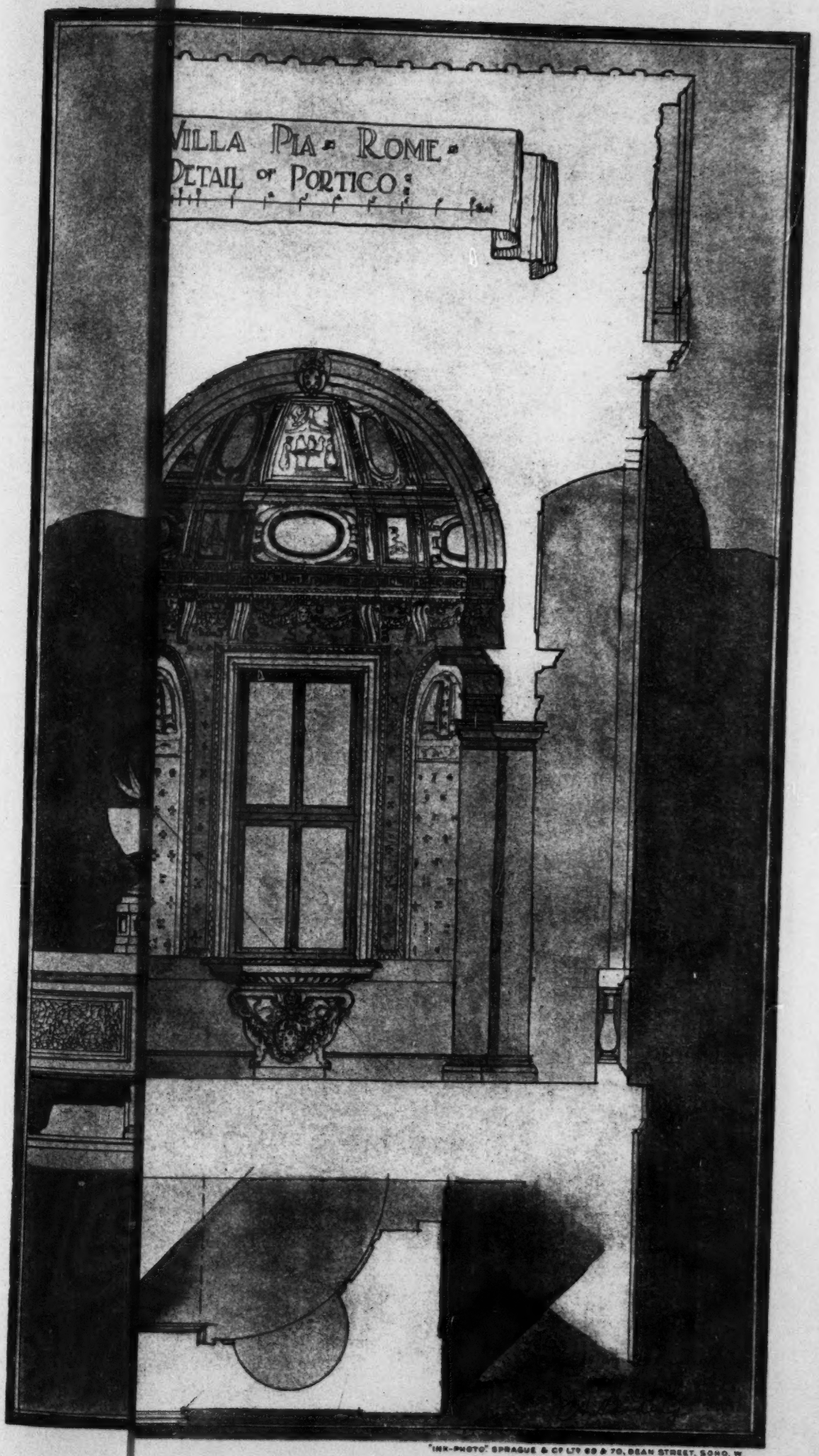
cton Green.

petition for this
Mr. W. A. Pite.
s submitted are

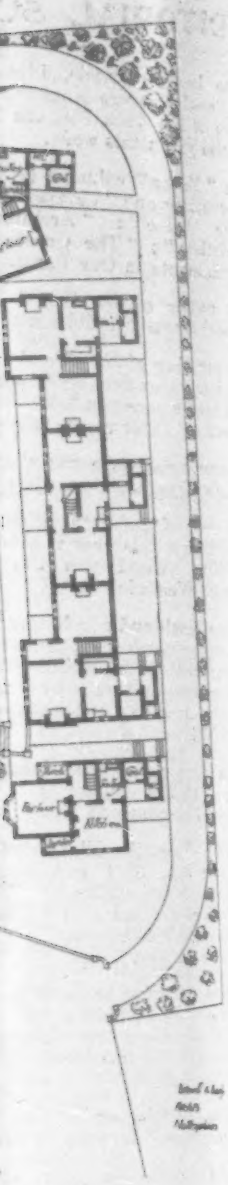
ices.

terations to the
rrow-on-the-Hill
first premiated
Mr. H. Prince,
Lincoln's Inn,
l design is by
20, John-street,
rd by Mr. H.
ers, Broadway,
gns of Mr. S.
l C. H. Rose.

is competition



"INK-PHOTO" SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.



nce. He himself declared nother work of a similar ld do it differently. This, ve been said by any other er, in future time, so far hames Tunnel, although be an interesting question nd criticisms as to better may still be urged, the be, who did it? And the hd the skill and daring of ll that posterity will care ard to it, at a time when Tunnel Company," its and its failure as a com-, will be all forgotten.

TION NEWS.

Peter, Acton Green.

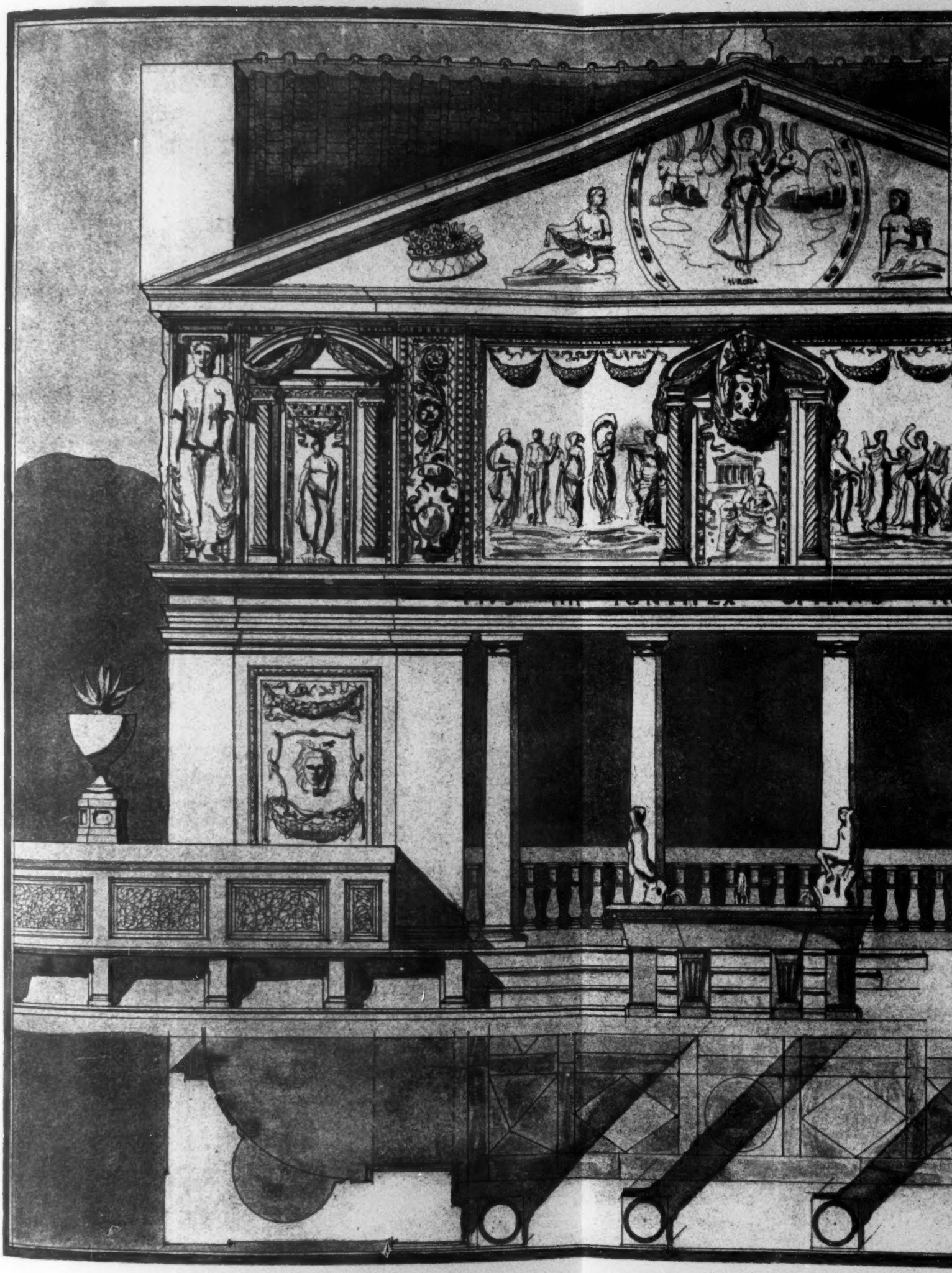
the competition for this arded to Mr. W. A. Pite. e designs submitted are 91.

Public Offices.

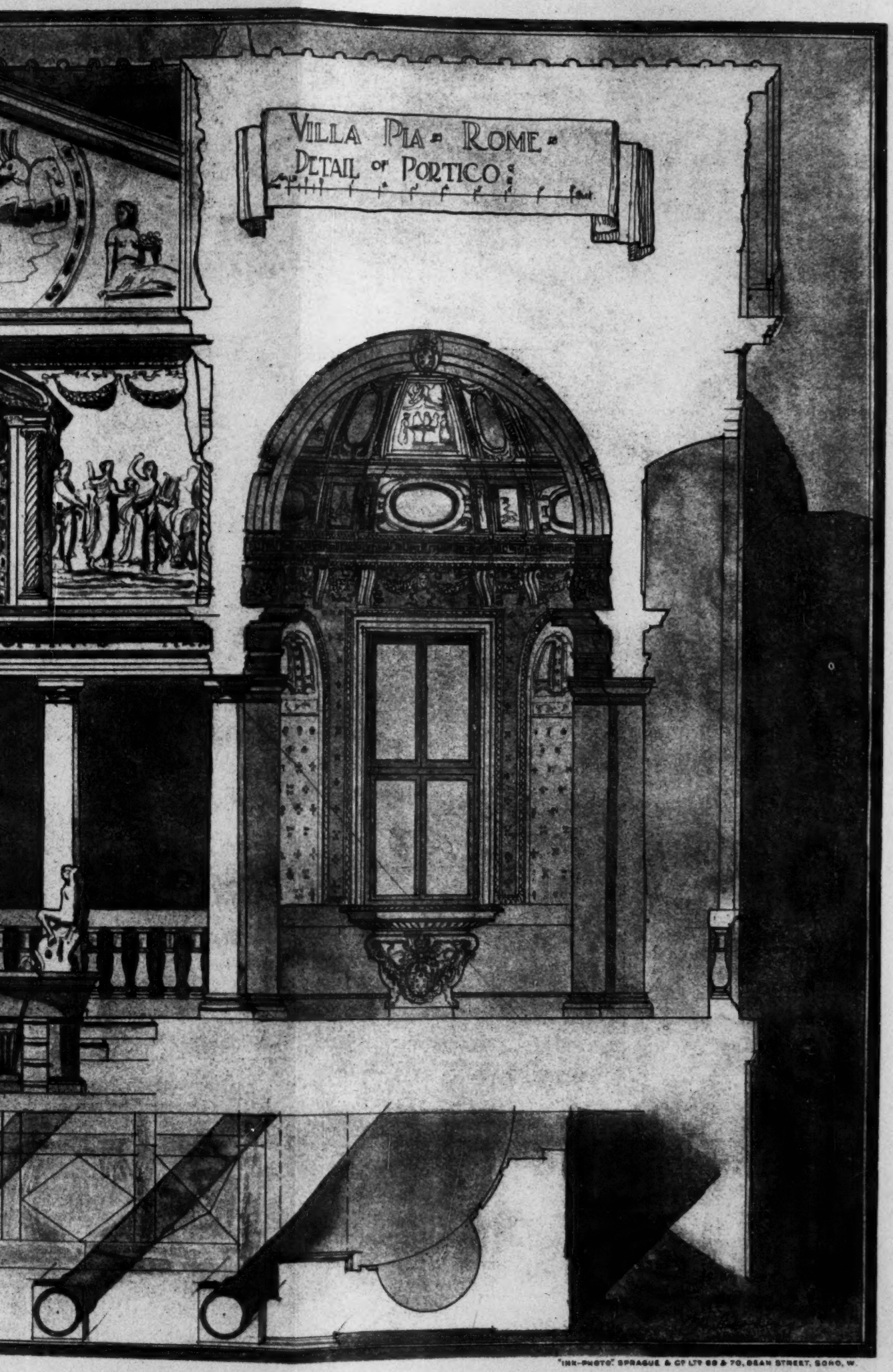
on for alterations to the the Harrow-on-the-Hill ncil the first premiated to be by Mr. H. Prince, d-square, Lincoln's Inn, premiated design is by R.I.B.A., 20, John-street, d the third by Mr. H. ne's-chambers, Broadway, The designs of Mr. S. arrow, and C. H. Rose, mmended.

tyn Estate.

icle on this competition

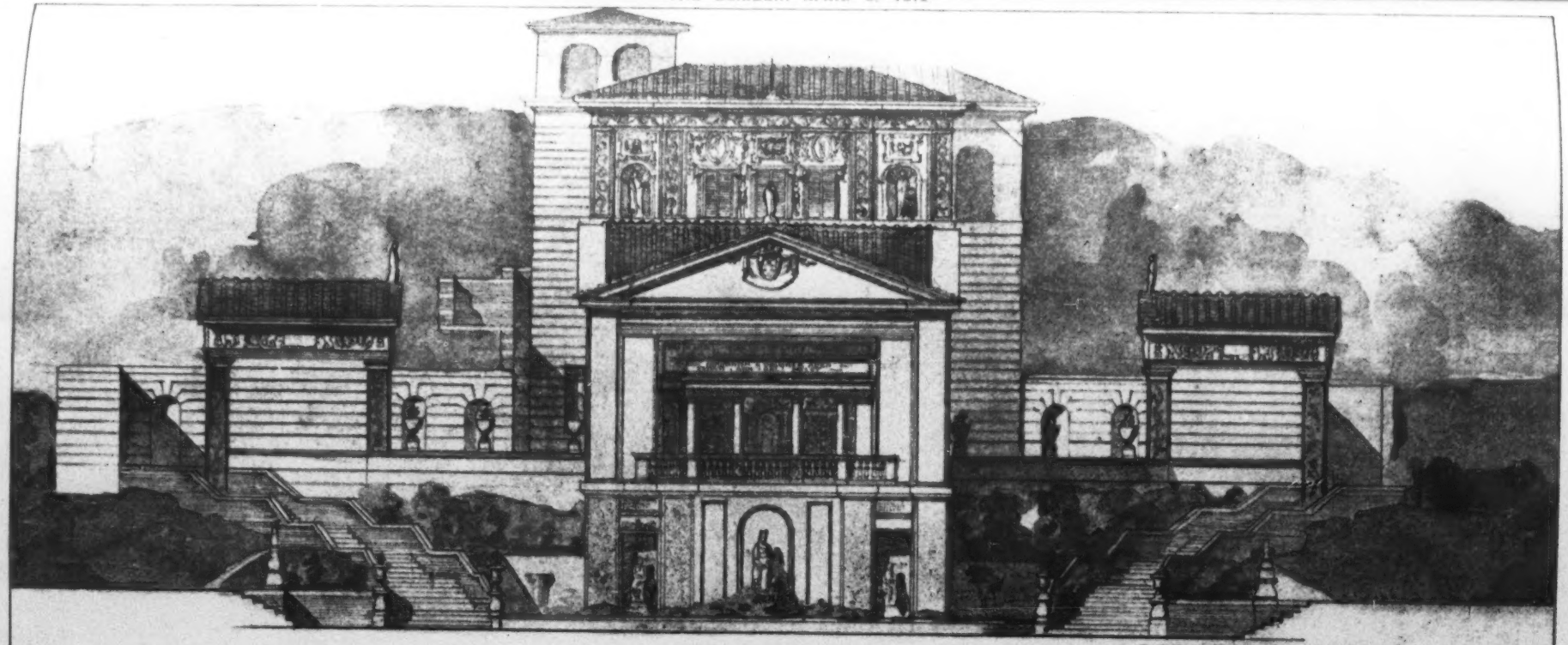


THE VILLA PIA, ROME.—Drawn by Mr. C. A. H

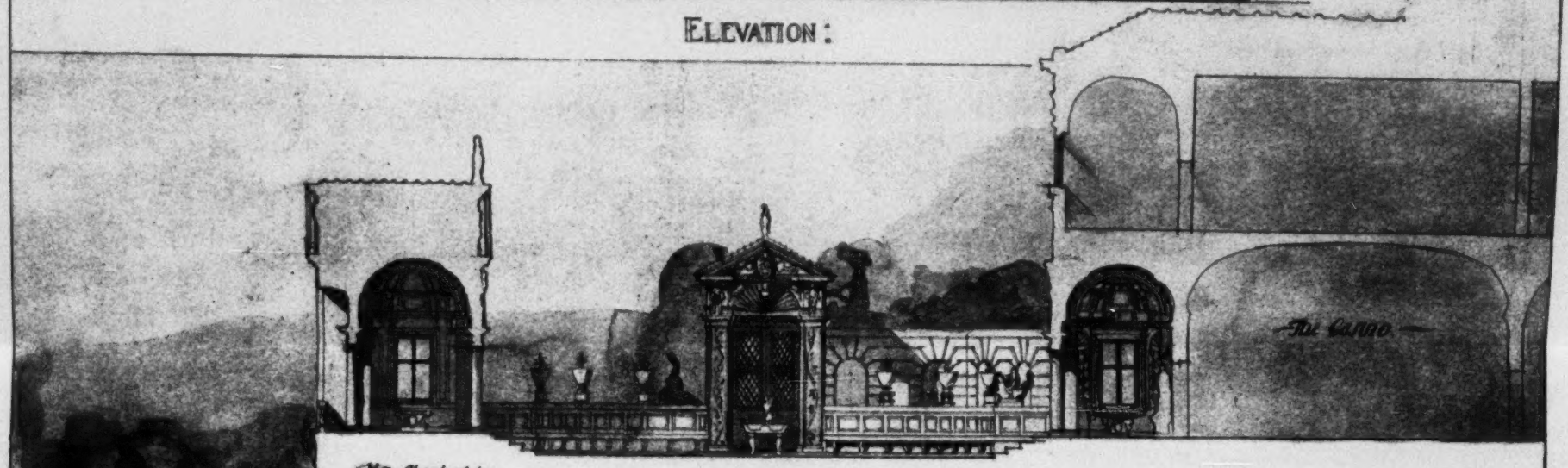


"INK-PHOTO" SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

—DRAWN BY MR. C. A. HARDING

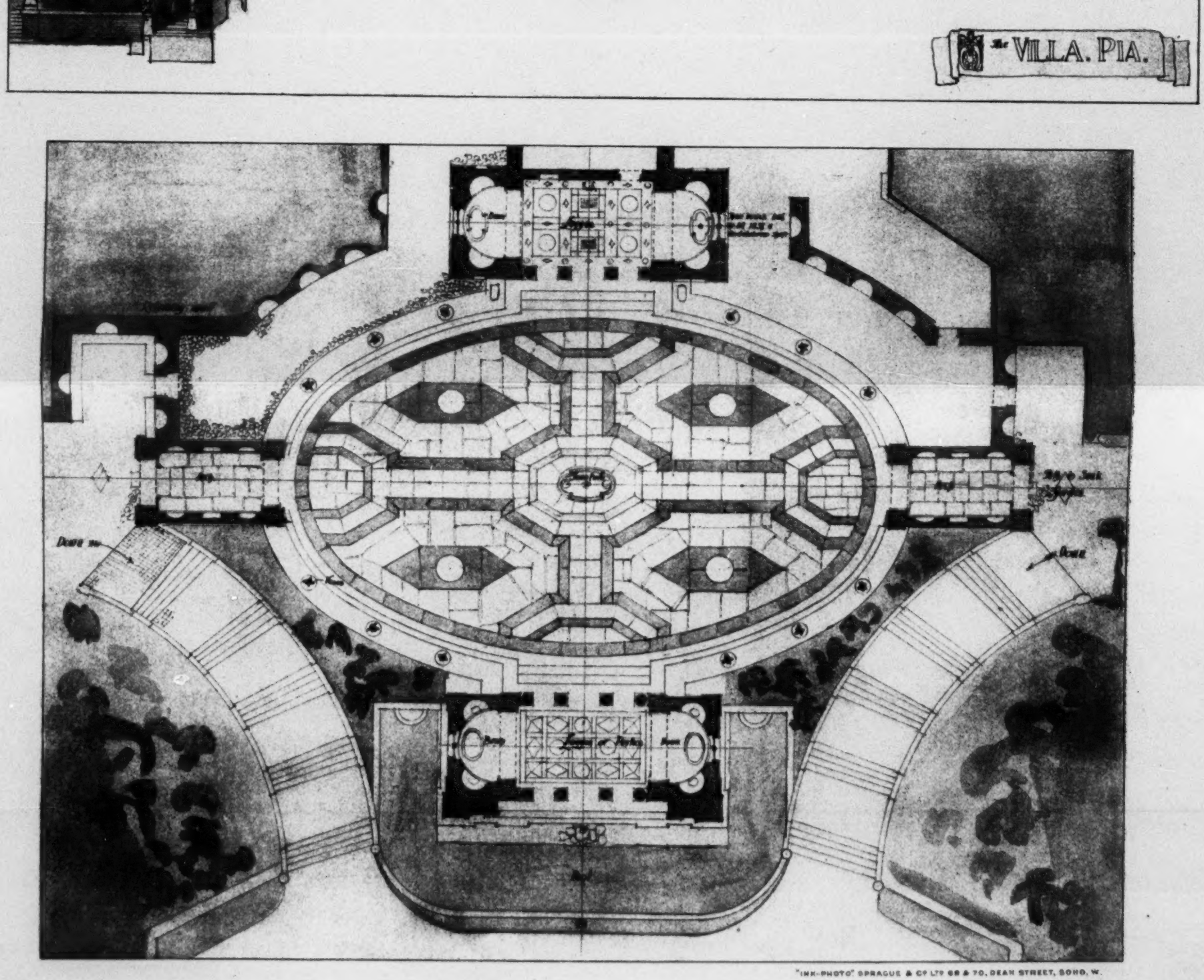


ELEVATION:



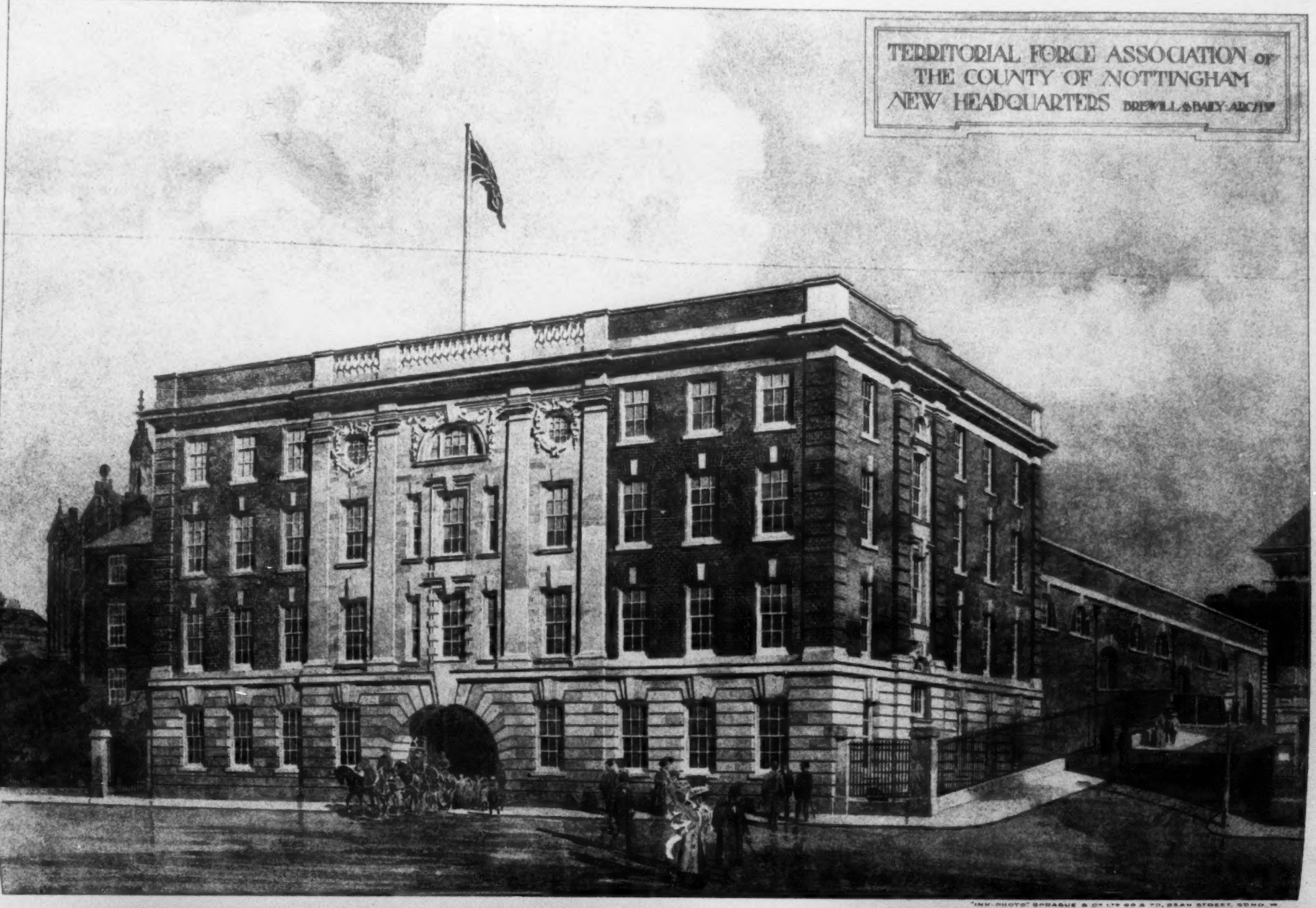
SECTION

THE VILLA PIA.



"INK-PHOTO" SPRAGUE & Co LTD 68 & 70, DEAN STREET, SOHO, W.

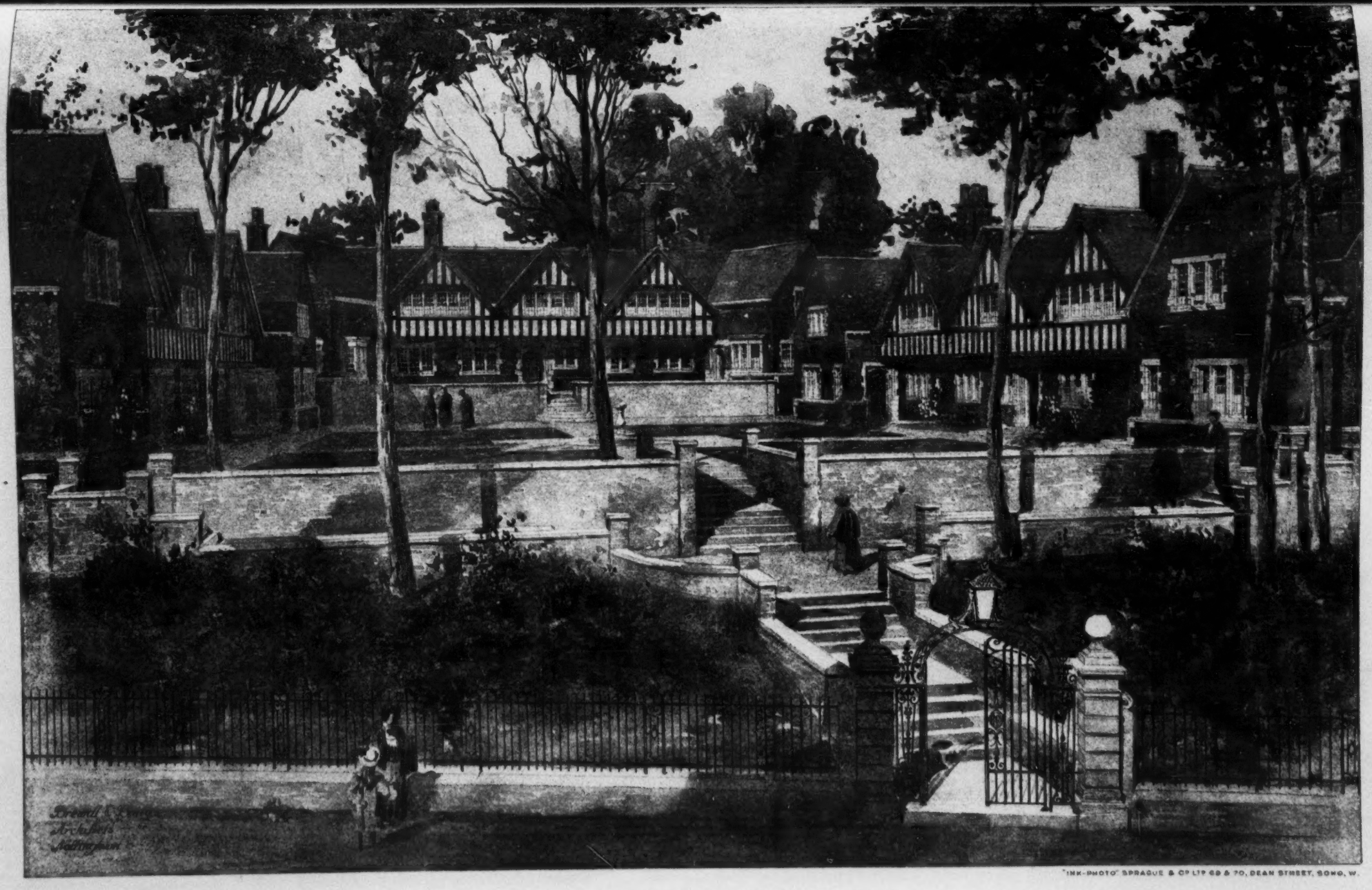
THE VILLA PIA, ROME.—Drawn by Mr. C. A. Harding.



HEAD-QUARTERS FOR THE TERRITORIAL FORCE ASSOCIATION, NOTTINGHAM.—Messrs. Brewill & Baily, F.R.I.B.A., Architects.

"INK-PHOTO" SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

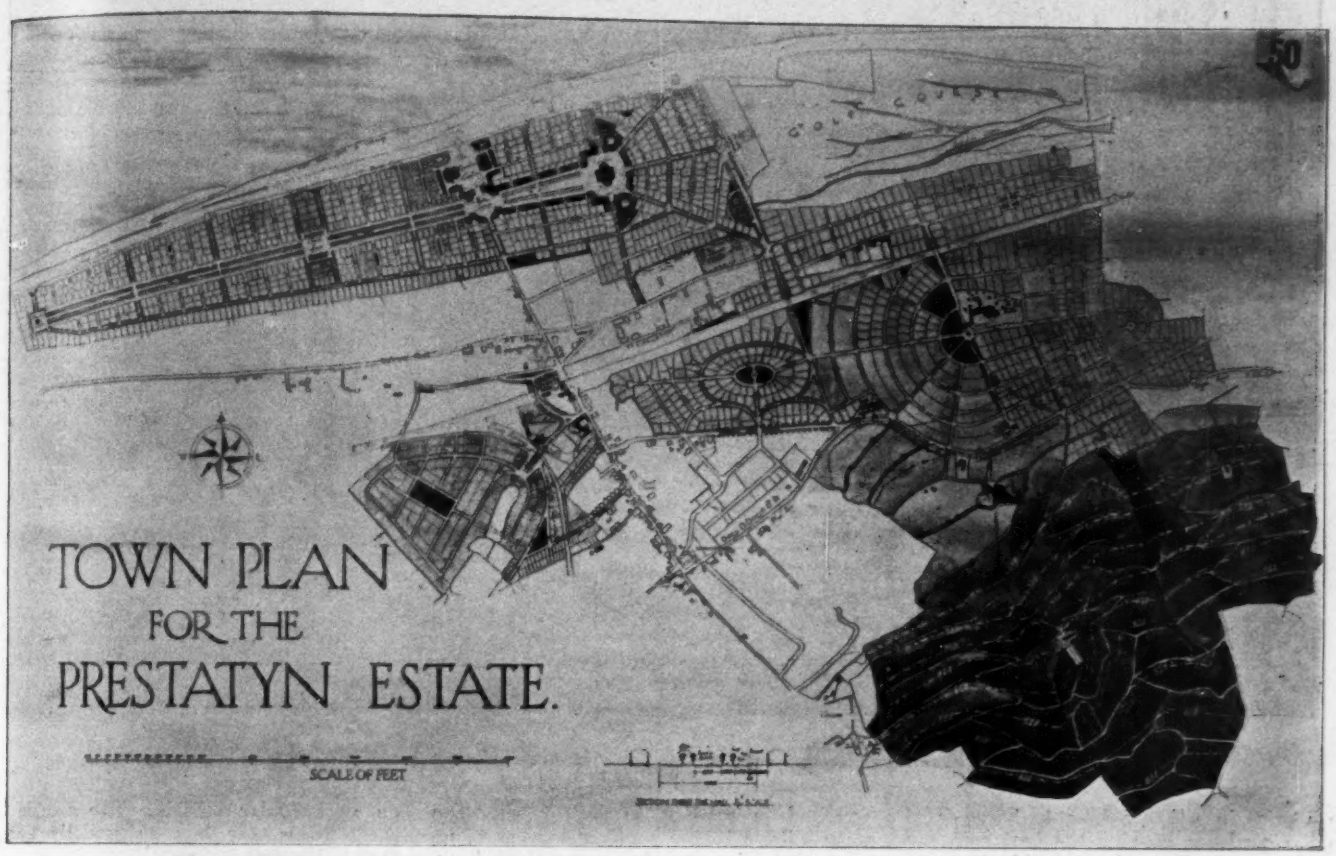
HEAD-QUARTERS FOR THE TERRITORIAL FORCE ASSOCIATION, NOTTINGHAM.—Messrs. Brewill & Baily, F.F.R.I.B.A., Architects.



"INK-PHOTO" SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W.

Royal Academy Exhibition, 1911. DESIGN FOR ALMS-HOUSES, NOTINGHAM, FOR THE WILKINSON SMITH TRUST.—By Messrs Brewill & Baily, FF.R.I.B.A.

MONTHLY REVIEW · *of* · CIVIC DESIGN.



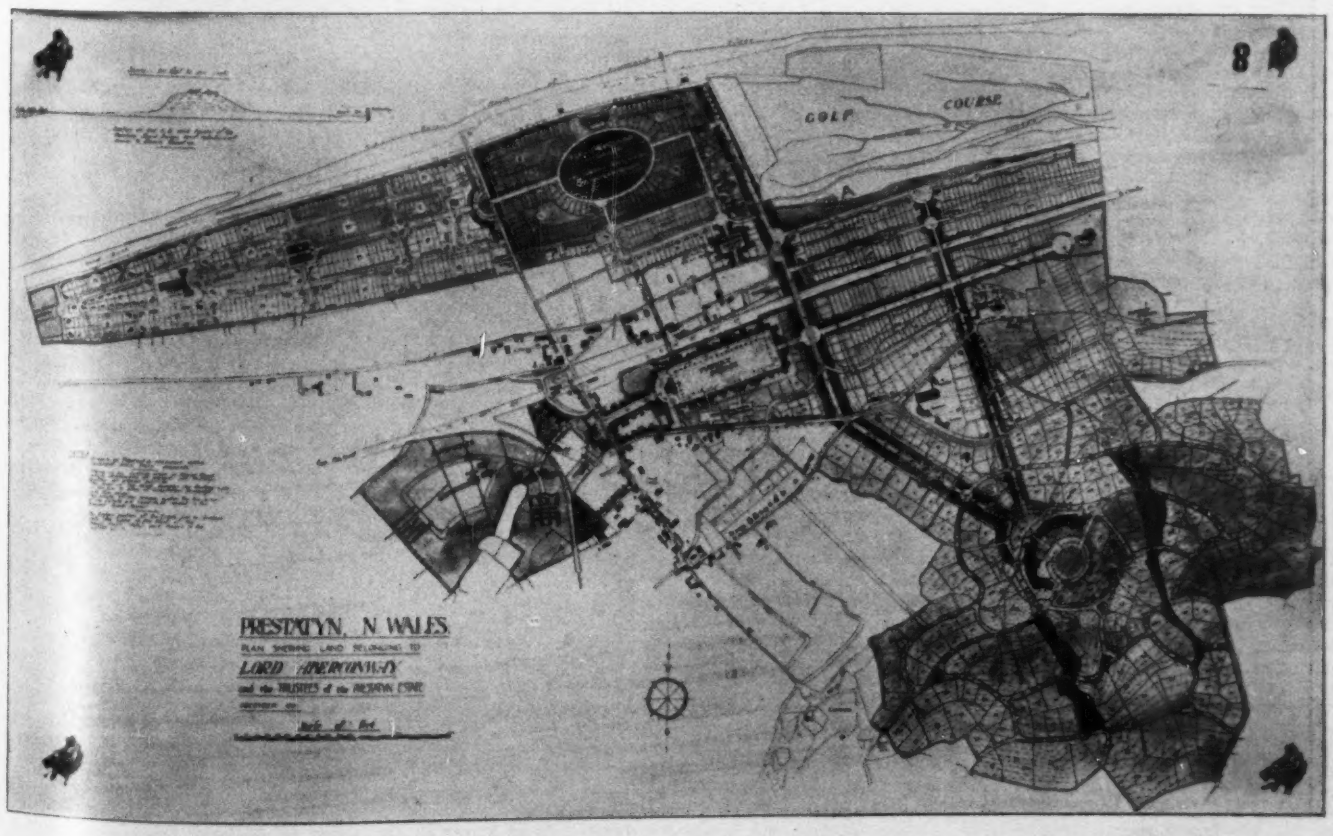
First Premiated Design, by Mr. Patrick Abercrombie, Mr. E. L. Bower, and Mr. T. F. Shepheard.

PRESTATYN ESTATE, NORTH WALES.

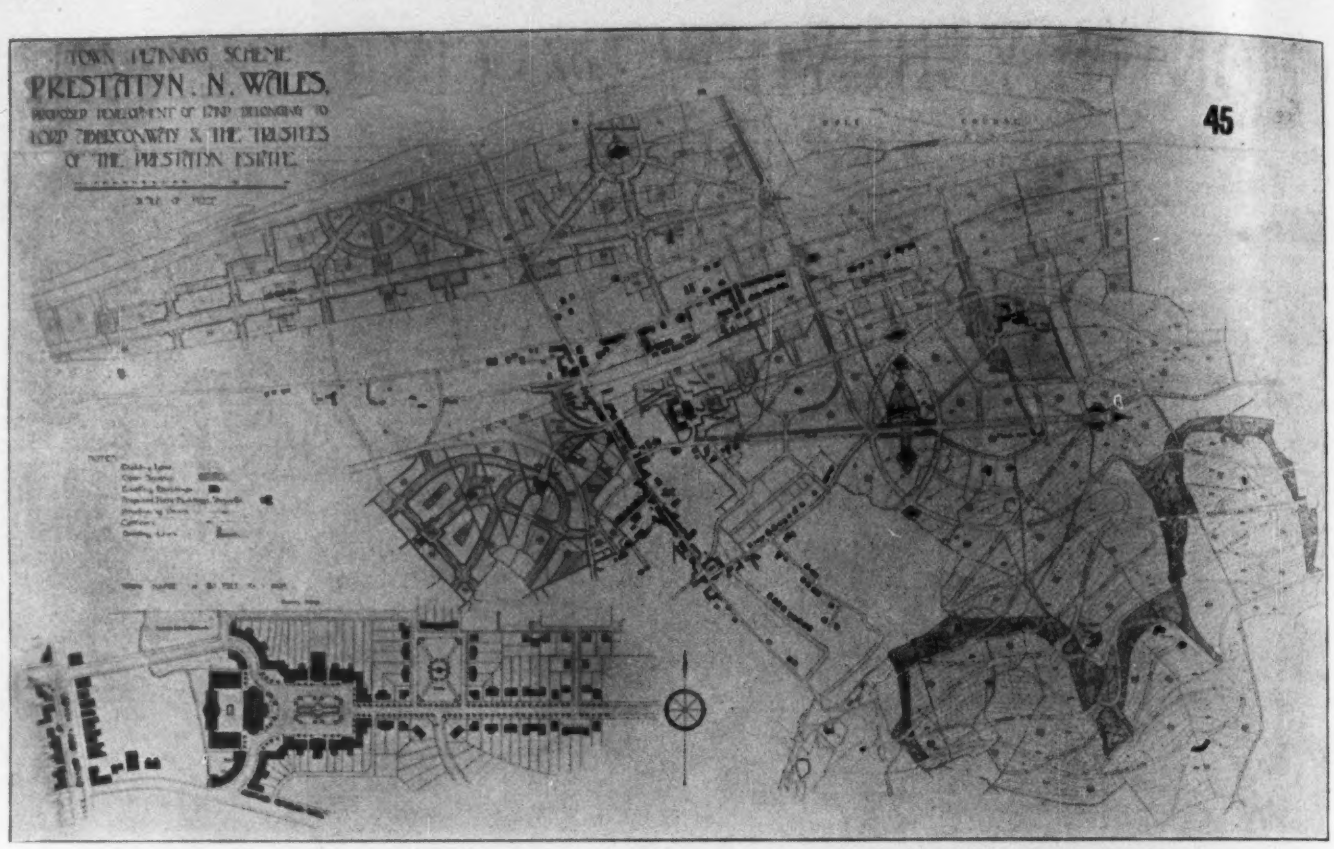
COMPETITION FOR LAY-OUT.

THROUGH the courtesy of the promoters, the trustees of the Prestatyn Estate, we are enabled to publish this week the designs premiated by the assessor, Mr. H. V. Lanchester, in this competition, together with those marked by him as "proxime accessit."

The estate comprises three areas nearly isolated from each other, two of these being almost equal in importance, and the third subsidiary to them. This must have involved a certain difficulty in the adjudication, for it would be unlikely that any one competitor would achieve the best solution in both cases, and the position might be likened



Second Premiated Design, by Mr. Harold Falkner.



Third Premiated Design, by Mr. Reginald Dann, of Messrs. Cheal & Sons.

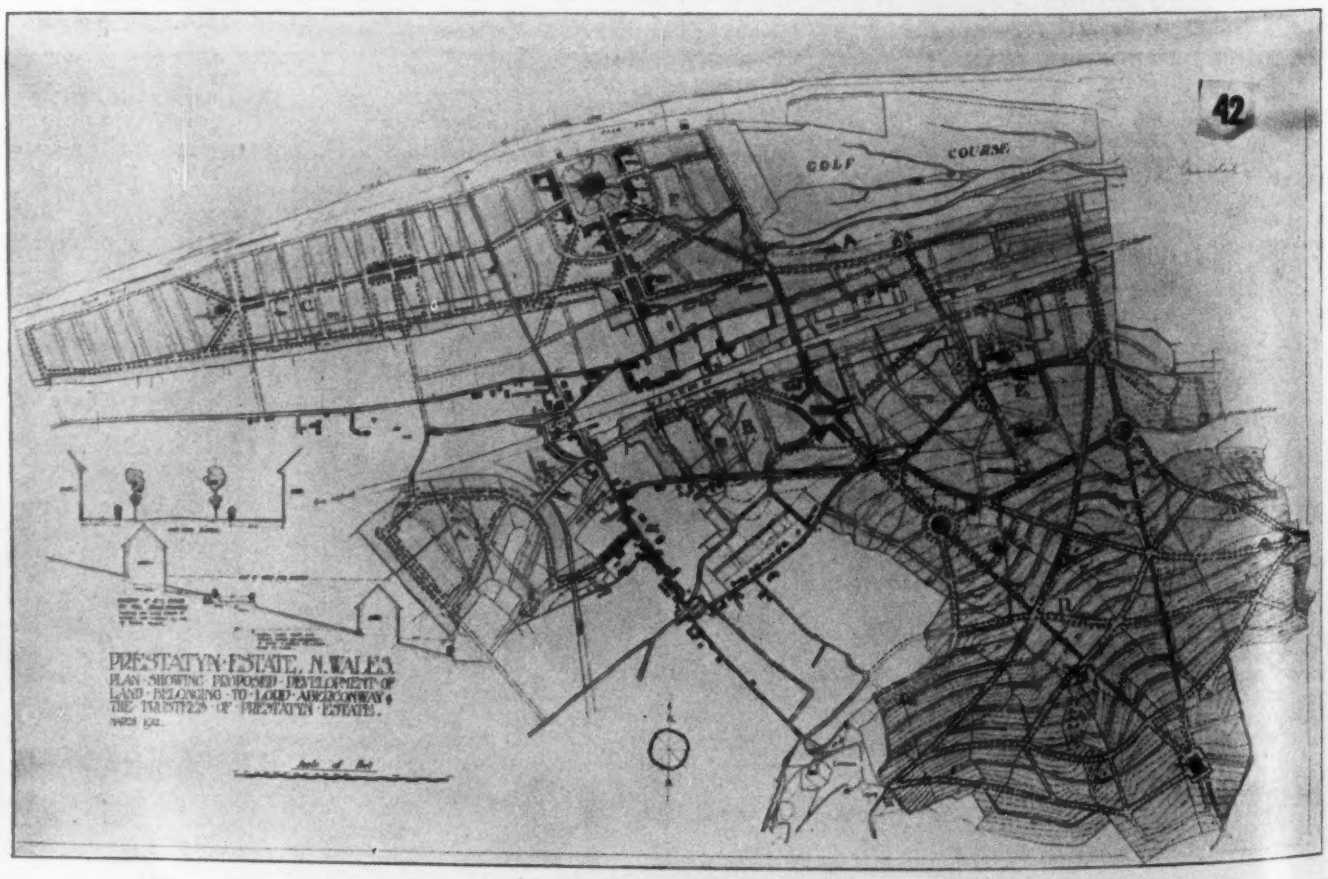
to a prize in a flower-show to be awarded to the gardener showing the best rose and the best cucumber. Add to this the condition that the rose and cucumber should form a good table group with the addition of an apple, and the simile is more complete.

The first premiated design, by Messrs. Abercrombie, Bower, & Shepheard, is more noticeably successful in the planning of the waterside area, where the middle of the strip of land behind the sand dune is marked by a well-arranged sheltered boulevard with the social centre in its proper place, and the buildings composing it particularly well arranged in relation to each other. The steep hillside to the south is treated somewhat sketchily, though on the right lines, but the design fails to take full advantage of the possibilities in connecting this hillside with the sea front.

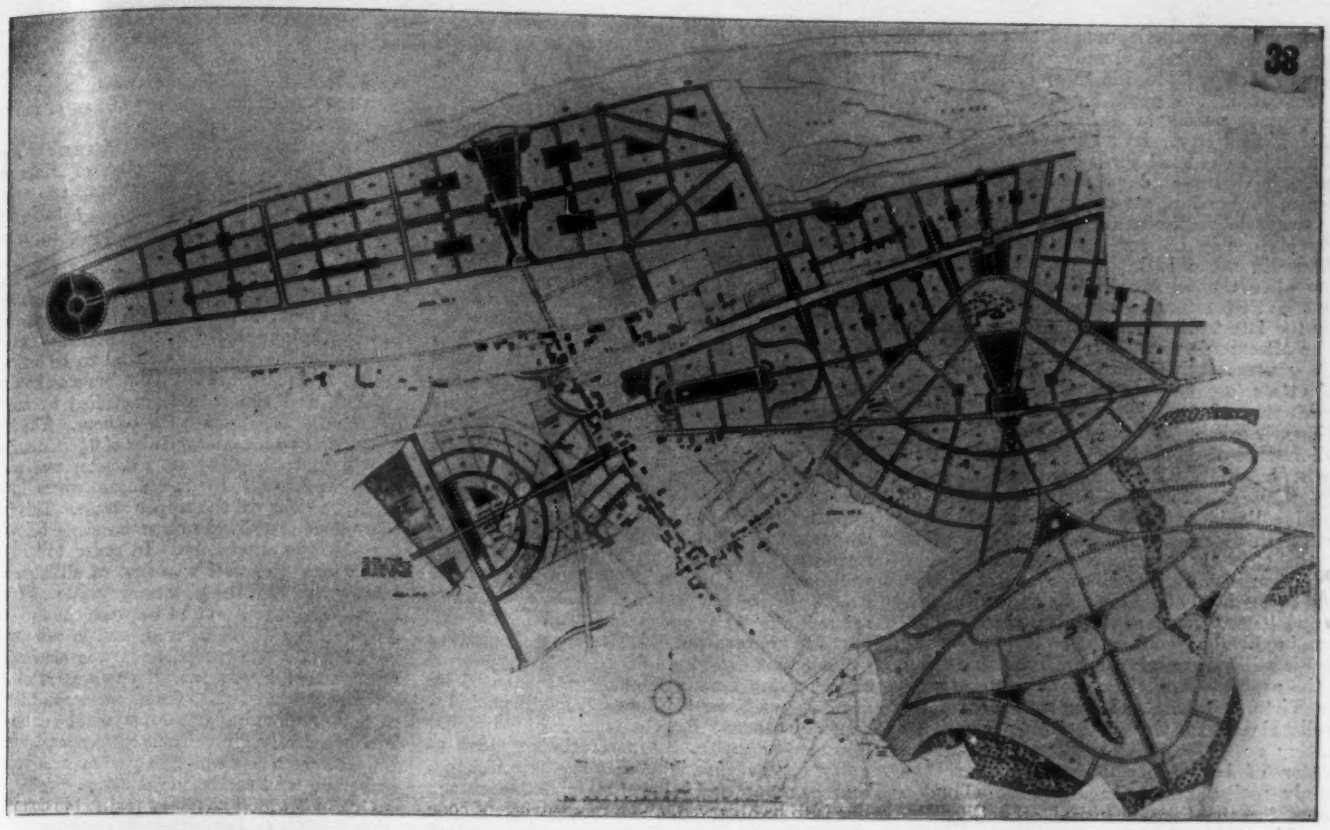
This connexion has been strongly emphasised in the design by Mr. Harold Falkner, placed second, whose idea in marking the termination of his principal avenue with a convex crescent appears an excellent one, as a means of affording a centre of interest amid the necessarily somewhat scattered effect of the general distribution of houses on an irregular hillside. The seaside land is, however, far less successfully handled than in the first design.

The design by Mr. Reginald Dann, placed third, also fails to some extent in the lay-out of the portion by the sea, the main boulevard suffering from too many intersections at an acute angle, but the means of connexion between the various sections of the estate are carefully studied, and the main road winding up the hill has been worked out with greater skill than is to be found in the design of any other competitor.

Two other designs have been highly



Highly Commended: Design by Messrs. Geoffry Lucas, F.R.I.B.A., & F. Lodge, A.R.I.B.A.



Highly Commended : Design by Messrs. H. J. Rowse, A.R.I.B.A., & Sydney A. Kelly, F.S.I.

commended by the assessor. That by Messrs. Lucas & Lodge appears to be a thoroughly sound, businesslike scheme, and, even if it does not display an imaginative outlook, it must obviously have run the premiated designs very close as an eminently sane and practical solution of the problem. The only obvious defect that strikes us is the undue steepness of some of the main roads on the hill, a defect that it shares with the design placed second.

The plan by Messrs. Rowse & Kelly is on good general lines as regards the lower ground, but we should say that they have spoilt their chance by endeavouring to enforce a symmetrical lay-out on an irregular hillside. Symmetry in such a position is unquestionably absurd, and when it involves impossible gradients the mistake should have been obvious.

Our criticism of the designs is limited to those selected by the assessor, as we are unable to notice the designs of other competitors, except to say that they included some good schemes.

IMPERIAL LONDON.

BY WILMOT CORFIELD.

THE broad basis of the design for beautifying London, ably illustrated by Mr. Adrian Berrington in the *Builder* of January 5, with its accompanying article, calls for a wide response of friendly criticism and support. The acceptability of the scheme for an "Imperial way" on the Surrey side is strikingly obvious, as also is the practicability of the desirable improvements suggested for the Middlesex side.

Volumes might be written on points arising out of the proposals, but the first thought to occur to one is that before any really extended movement in the direction of public improvements on a large scale can be successfully inaugurated the law as regards compulsory acquisition of buildings and sites must be modified and strengthened.

A recent decision to disregard St. Paul's Cathedral as the dominating factor in fixing the course of a new bridge across the river brought into prominence an aspect of the legal rights of a community desiring to possess a given site for public improvements. The right to acquire it is admitted, but not the right to upset an owner of property off the line of the improvement in order to obtain a suitable site to meet the requirements of a dispossessed owner on the line. A medical man "A" occupies a house at a given corner required for purposes of widening a street. He may be compulsorily bought out, but "B's" adjoining property, which would equally suit "A's" purpose, cannot be compulsorily acquired, and "A" has to be heavily compensated for the loss occasioned to his practice by removal to a distance. The principle of compulsory acquirement of private property for the public good having been accepted, it is a grave question whether its scope should not be enlarged so as to cover with the upsetting of "A" the upsetting of "B" also, in view to the proper putting through of an improvement, as a whole, upon economical and comprehensive lines. Until this extension is accepted by legislative enactment delay and expense must result. A freer hand for authority is demanded before London's wholesale beautification can be brought about.

In the published drawing a new Buckingham Palace covers the site of the existing one. The new Palace should be further back from the Mall and clear of that now occupied. By this two advantages would be gained: the Royal residence would not be upset during the replacement, and the Victoria Memorial would win eventually between it and the Palace a privately enclosed vista of lawns and trees, greatly adding to the charm of its surroundings.

Charing Cross should (with the permission of the railway company owning it) be transferred to the centre of the open space on the Trafalgar-square side of the Mall archway, additional reason for this removal being found in the fact that the Cross would then be nearer the ascertained actual site of its original. The Strand could then be widened at the expense of part of the station yard, pending the ultimate transfer of the station itself to the other side of the river. The opening of the Mall between Drummond's Bank and the nearest building left standing, at present nameless, should be christened "Rivett-place," in memory of John Rivett, the brazier, who preserved for posterity Le Sueur's statue of Charles I. from the destruction it was thought had befallen it. Lord Herbert of Lea, hidden in the War Office courtyard, might join Florence Nightingale in York-place. It is of interest to note that *Punch*, as long ago as 1861, proposed and depicted a statue in Pall Mall to "the Lady with the Lamp."

Mr. Berrington provides for the National Theatre on and about the site of the Adelphi Theatre. A better position for it would be on the Surrey side, as nearly as possible to a point on the "Imperial way," known to have been the spot where a theatre of Shakespeare's own days stood. Such a point would be in the future brought more within the borders of a London suited to the pleasure-seeker by the beautifying of the surroundings of Southwark Cathedral. Some day London will realise the injustice done to Shakespeare's memory by preserving the ineffective statue to him in Leicester-square, the wrong place for it. The statue is not an ignoble one, and its transfer to the precincts of the Cathedral might well be considered. The old Buckingham Water-gate could be reconnected by inlet with the Thames, and used on special occasions for river pageants. The re-erection of the Westminster Court-house should be carried out elsewhere, and the site of the demolished building left to turf together with that of the hospital (to be also removed elsewhere), now obscuring the view of the new Wesleyan Hall. An Abbey annexe for the reception of monuments to the dead who have passed away since Queen Victoria's decease is urgently needed, and to it should be removed the Salisbury and Campbell-Bannerman memorials. The fine range of Royal statues in Westminster Hall should be supplemented by others to Victoria and Edward VII., while those Members of Parliament who find their unasked-for salaries an inconvenience might pool them for the further provision of statues, frescoes, and other decorative paintings in the Parliament House. The "piked head" supposed by some to be that of Cromwell, frequently supplying newspaper copy, ought to be finally buried under the Cromwell statue near Westminster Palace-yard. The spot of Nelson's coffin's resting-place in the Greenwich Painted Hall should be permanently indicated by a brass inscription let into the floor.

Chantrey's statue to George IV. in Trafalgar-square was originally intended for the top of the Marble Arch when that structure faced Buckingham Palace. Its removal to the Arch in its present position is now suggested. The relegation of these two grim-looking warriors, Sir Charles Napier and Sir Henry Havelock, to positions on either side of the York steps leading from the Mall would leave the four angles of the Square free for five men of action—Gordon (now dwarfed to a needless extent by the Nelson Column) and Clive, Cook, and Wolfe, now under preparation. The protest is now made against the banishment of Clive to King Charles-street; the proximity of the India Office is apparently the only reason for placing the recoverer of Calcutta and victor

at Plassey in so little used a thoroughfare. The India Office already possesses a "Mason's effigy" to his memory. No site in London is too good for Clive. In 1907 the present writer in Calcutta advocated a statue in that city. By a curious coincidence, upon which the local Press commented at the time, just three days afterwards, Lord Curzon, in London, started in the *Times* the movement now culminating in the erection of twin statues in London and Calcutta. This writer did not a little by voice and pen to keep alive the scheme in the East, and his hope is that attention may be called before it is too late to the perpetuation of a mistake to be afterwards regretted.

A representative Indian Hall similar to Calcutta's great Victoria Memorial should grace the "Imperial way" near Waterloo Bridge, hard by a new London University building erected also on that side. These might interfere with the continual nightly exhibition of illuminated advertisements of certain liquid refreshments, but London would survive the blow. The distribution of the Crystal Palace among various parks and the utilising of its site for a vast Indian Hall at the head of noble public gardens might, as an alternative, possibly solve another outstanding London problem. The early respacing of Piccadilly-circus is imperative, the delay in the completion of the embankment between the Victoria Tower and Lambeth Bridge inexplicable. The time has surely come for putting an end to piecemeal progress in the matter of bricks and mortar, and for the speedy realisation of the dreams of London lovers for the City Beautiful, the City Reproachless, the City Superb.

TOWN PLANNING.*

WE have already seen that the corporate life is really a collection of individual lives all mutually dependent upon and acting and reacting on one another, and that this corporate life is undergoing a process of evolution towards a more completely fused condition. This process means the more perfect readjustment of every part of the civic life to every other part, a process of give and take everywhere, and entails a surrender of the rights of the individual in the interests of the whole. The more perfect the civic life the more complete is this subordination of the individual.

Communal life is only possible on the understanding that every individual is willing to subordinate his personal interests and surrender his private rights for the good of all. This is the basis of civilisation.

Now, in any state you find that every man in whatever part of the country he may live has to surrender certain rights or liberties—such as the liberty to steal from another or the right to exact private redress against those who steal from him—but beside this general agreement between ourselves which applies equally anywhere and everywhere, and is now the general law of the whole country, limiting our freedom in a general way only, you find that inside this general law that applies everywhere there are other additional and minor laws or by-laws which apply only in certain districts, limiting our individual freedom still further in those districts. These by-laws are the result of the growth of towns, and they represent the common agreement at which we have arrived as to the need of further curtailment of individual rights under the particular circumstances.

If a man wants to do as he likes, within the limits of the common law, he must live in an isolated spot in the country. In complete isolation he may freely develop his own personality and give expression to his own individual tastes, but the nearer he comes to the centres of population the more his individual tastes and habits must be restricted, till in the heart of a great city he loses all individuality in the corporate life, when everyones conduct approximates to uniformity and is governed by consideration for the general good.

This restriction of personal liberty is the price he pays for the advantages of the town.

You will notice, however, that not only are there purely voluntary restrictions in personal habits (such as costume and behaviour) and the restrictions by special laws—such as those affecting the speed of motor-cars—but also certain voluntary agreements between different classes of private individuals, such as landlords and tenants, which might be described as by laws in the making. For instance, in the country you can practically keep what animals you like on your premises, but in some suburbs you may not keep chickens in your garden; while in some London flats you may not keep a cat, or a canary, or even a musical instrument. These are all obligations voluntarily entered into in return for the advantages of the town, and are just examples showing how everything tends towards uniformity the nearer we get to the centre.

Now, this tendency to uniformity has an important and interesting influence over the general lay-out of a town and the treatment of its buildings.

As a complete town expresses the complete corporate life of its inhabitants, taken as a whole, so the house expresses the life of the individual. In the country where, as we have seen, a man's individuality develops freely, untrammelled by contact with his fellows, the house which expresses his life can also develop freely; if the owner is eccentric his house can be eccentric also, it can be any shape, size, or style he wishes, he has a building site free of all restrictions, he can do as he pleases—he is free to behave as he likes, and his house can express it. But the moment he comes towards the suburbs of the city restrictions begin. His own modified character and habits show themselves in his house—as he modifies his conduct out of consideration for his neighbours, influenced by their presence, so his house is modified, influenced by others. A certain degree of individual treatment remains, but a certain approach to uniformity is apparent. His site is restricted, and the nature and value of his house, a frontage line is to be observed, and a more stringent code of building by-laws. There may be no actual restriction as to architectural style, but even then the influence of the neighbourhood tends to present too much eccentricity in design, for he does not care to be laughed at.

When, however, we get into the centre of the town we find the complete absorption of his individuality in the corporate life expressed by the inclusion of his house in a terrace row of similar houses, whose uniformity of outward appearance expresses the general uniformity of his outward behaviour, costume, and appearance. The inner mental life of the man which retains its own personal individuality is expressed by the internal arrangements and decoration of his house, which can be as individual or even eccentric as may be desired, without offence to his neighbours. Such small differences of outward behaviour and personal characteristics as still remain would be expressed by the details of the front.

This seems to be the general principle that governs the treatment of houses in the mass.

* Extracted from a lecture by Mr. A. R. Jemmett, F.R.I.B.A., at the Westminster Technical Institute.

THE FOURTH REPORT OF THE WELLCOME TROPICAL RESEARCH LABORATORIES.

THE events which led up to the occupation of the Sudan by the British authorities and to the rebuilding of Khartoum are so recent, and were of so dramatic a character, that they are familiar to everybody.

The results of that occupation have been, in many respects, remarkable. Civilising and educational influences have been brought to bear upon this region. Near the spot where Gordon fell in 1885 there now rises the "Gordon Memorial College," devoted to the training of the young; and as an integral part of it the "Wellcome Tropical Research Laboratories" were established some few years ago through the munificence of Mr. Henry S. Wellcome under the auspices of the Sudan Government Department of Education.

These laboratories, under the guidance of their able Director, Dr. Andrew Balfour, have been very largely concerned with investigations into purely medical problems. Tropical diseases, insects, animals, and sociological conditions have been the subjects of minute inquiry; but, as was to be anticipated from the thorough and practical character of this institution, the study of the conditions of health and disease has necessarily involved a study also of the familiar problems with which builders have to grapple in all parts of the world, namely, sanitation, drainage, water supply, and town planning. Upon these latter subjects the fourth report of the Laboratories, just issued, contains a surprising amount of information not otherwise available.

The provision of adequate water supplies for large towns in tropical regions can no longer be left to Nature and the natural processes of filtration and purification which springs and rivers undergo. In any large aggregation of population the sources of contamination are too numerous and the purifying effects of sun and air too slow and insecure.

When the question of an improved water supply for the growing city of Khartoum became urgent it was evident that two sources were available—(1) The river, by taking the supply above the town; (2) deep wells, if such could be obtained.

A trial boring was sunk at a selected site above the town and close to the southern bank of the Blue Nile, and seven deep wells were sunk. Unfortunately, the abundant supply tapped by the wells was found to be seriously polluted. The source of pollution was, however, located, and the trouble remedied by cutting off the upper strata with cement. The wells were lined with a casing-tube of 9½ in. diameter. A second tube of 6⅝ in. diameter was passed down each well to the depth where it was desired to cut off the upper strata. This inner tube descended in the open borehole below the level of the outer tube. In order to facilitate operations the well was first of all filled with sand to provide the necessary cushion. Liquid cement was then poured between the two tubes down to the depth desired, and in cases where it did not settle properly it was blown down and packed by means of compressed air. It set, for the most part under water, and formed a hollow column of impermeable substance which entirely prevented contamination from the Blue Nile water through the porous travertine and sandstone stratum.

One fact which has been realised in connexion with buildings for white men under tropical conditions is the necessity for protection against light as well as against heat. The natural pigmentation of the negro's skin cuts off these light rays, but the European requires additional protection, and the means for effectually darkening the house form, therefore, an important desideratum.

The erection of a model bungalow at the Gordon College has afforded an opportunity of testing certain ideas which had been evolved as the essentials of a white man's residence in the Sudan. The points referred to were as follows:—

(*a*) The walls should be protected from the sun by verandahs, especially if they are of brick or stone; and, if not so protected, should have as few openings as possible.

(*b*) Verandahs should not be less than 10 ft. wide—preferably of timber as being cooler than brick or stone—brought down to within from 4 ft. to 7 ft. above the floor level, with an air space between roof covering and lining, and ventilated at the top.

(*c*) Roofs of houses and verandahs should be thick enough to stop both the heat and light rays, and be lined if constructed of timber.

(*d*) Rooms should be arranged as far as possible so that each gets a share of the prevailing winds.

(*e*) Colours should be employed to which the eyes are naturally adjusted—such as the greens, dark yellows and browns, white being avoided, especially for outside decoration, as the glare from it in the tropics is terrible.

In the chapter on "Some Municipal Engineering Problems in the Tropics" some exceedingly useful notes are to be found dealing with the difficult problems of sanitation, the disposal of sewage, and the provision of public latrines in a large town of mixed population. It contains also the building regulations of the town of Khartoum.

The "conservancy" method of sewage disposal has been adopted at Khartoum, and is being worked very successfully in connexion with a sewage farm and a refuse destructor outside the town.

These two volumes contain many diagrams and much novel information concerning life in the tropics, and are of special interest to builders, architects, and sanitarians. They will well repay study by all whom work or inclination beckons towards the Equator.

THE "TOWN PLANNING REVIEW."

THE *Town Planning Review* continues to maintain its high standard. The third number of Vol. II. begins its editorial comments with an illustrated discussion of Professor Adshead's suggestions for improving Hyde Park Corner as a site for the King Edward Memorial.

The Town Planning Conference at West Bromwich is then dealt with by Professor

Paris: Vista in the Garden of the Luxembourg.
(From the *Town Planning Review.*)

Adshead, with special reference to engineering in relation to such schemes; and Mr. Thomas Adams concludes his general survey of New York, in which he shows that the housing conditions are far worse than is, we think, generally realised. An article by Mr. W. E. Groben, Architect to the Department of Public Works, on the re-planning of Philadelphia concludes the series of five American schemes which has been a valuable feature of the *Review*. Illustrations are given of plans and models of the diagonal parkway.

Professor Adshead's well-illustrated article on "Obelisks" is the third of the series on the decorations and furnishing of the city. It gives information about the various obelisks in the chief cities of Europe, and illustrates them with well-chosen views, chiefly of obelisks in Rome.

The reference to "Cleopatra's Needle" afforded an opportunity for commenting on the placing of its supporting sphinxes facing outwards, but no doubt it was thought sufficient to place it in juxtaposition to that in the Piazza de Quirinale, with its supporting horses facing outwards, and leave us to point the moral for ourselves.

The Editor continues his study of the influences which have shaped the growth of Paris with a valuable article on the "Royalist Garden Designs and Squares," for so much of which Louis XIV. and Louis XV. were responsible. Two most interesting old plans are given, one by the Abbé Delagrive, 1737, and the other by Louis Bretoz, 1729, and a comparison is drawn between the Avenue des Champ Elysées and the Unter den Linden, regarded as approaches and entrances to a city. Some charming views and vistas are given, two of which, by the courtesy of the Editor, we are enabled to reproduce.

Mr. T. H. Mawson discusses the "Position and Prospect of Landscape Architecture in England." We are inclined to share the doubts expressed by the Editor as to the use of the term "Landscape Architect," and to deprecate any attempt to create an artificial distinction between the design of a building and that of its placing or environment, the two things being, in our opinion, but parts of one problem. If architects would concentrate more on the essentials of their work the æsthetic aspects of both sides of this problem should not be beyond their scope.

CIVIC DESIGN NOTES.

The Great Western Roadway.

ALL who have occasion to travel to the West of England by road will follow with keen interest the proposal to project Cromwell-road through Hammersmith to Brentford and Hounslow. Such a road is one of the pressing necessities of London, and if, through the co-operation of the Road Board with the several local authorities concerned, the scheme can be brought to fruition it will be a work of abiding importance. While the subject of road cutting and the widening of existing thoroughfares is under consideration the architectural possibilities must not be overlooked. The cost of the actual highway is estimated to cost about 1,750,000*l.* To bring forward any ambitious scheme of building at the present moment would be to court failure, but the magnificent opportunity to put modern theories into practice should not be neglected in due season.

St. George's Hill Estate, Weybridge.

A COMPANY is formed to develop this estate of nearly 970 acres, which commands fine prospects in one of the most beautiful parts of the county. The scheme provides for the erection of houses, to consist chiefly of large residences to cost from 2,000*l.* to 10,000*l.* apiece, for a golf course of 160 acres, and a sports ground of 10 acres. Forty acres are set aside for roads, walks, drives, and rides, and the ancient earthworks and the rhododendron valley will be preserved. A novel feature of the planning will be presented by the common kitchen-garden, with orchard, vineries, and greenhouses, for the growing of produce for all the tenants, which obviates the spoiling large areas of woodland by forming a separate kitchen-garden for each house.

Slum Areas, Nottingham.

THE City Council have ratified a scheme for expending about 140,000*l.* in clearing away what is regarded as the worst slum area in the town, which includes thirty seven squalid streets, and 600 houses inhabited by nearly 2,000 people. Some statistics presented by Dr. Miller, Chairman of the Housing Committee, show how great is the death rate in that quarter as contrasted with the rates in other parts of the City.

A Sports Ground for Guildford.

SIR HARRY WAECHTER, who was High Sheriff of Surrey last year, has bought from Lord Onslow and presented to the Corporation of Guildford the local sports ground, 8 acres in area, for its continued use for recreation and for purposes of military manœuvres by the Territorial or National Reserve Forces.

A Park for Eastbourne.

A SPECIALLY-APPOINTED Committee have recommended the acceptance of the Devonshire Park Company's offer to sell the park to the Eastbourne Corporation for 110,665*l.* The Duke of Devonshire gives 10,000*l.* towards the purchase-money, and will reduce his interest in the company from 46,000*l.* to 23,000*l.*; he also offers the interest on the balance of 13,000*l.* towards the provision of an orchestra conditionally upon the levying of a penny rate for purposes of the band.

Electric Railway Bills (London) in Parliament.

THE Select Committee of the House of Commons, of which Sir L. White is Chairman, have ordered to be reported to the House the London Electric Railway Bill for extending the Baker-street and Waterloo Tube line from Paddington to the London and North-Western main line at Queen's Park, and the Edgware and Hampstead Railway Bill for extending the Charing Cross Tube line from Golder's Green to Edgware, with an amalgamation of the undertaking with the London Electric Railway Company.

Popularising the T.P. Act.

"WHAT Town Planning Means" is an excellent little pamphlet by George L. Pepler, F.S.I., published by the Garden Cities and Town Plannning Association at the price of 1d. It points out in a concise and popular manner just what benefits seem to be obtainable under the Act. It is divided into two main sections—what a Council can do, and what an owner can do. Under the first heading it shows the possible scope of operations, and what a Council can do by making use of its powers, what its position will be if it does not make use of them, what it will cost, and what ought to be done at once. Under the second heading it points out the present position of the owner, the possibilities opened up by the Act, and how the Act works from his point of view, whether the local authority does or does not prepare a scheme.

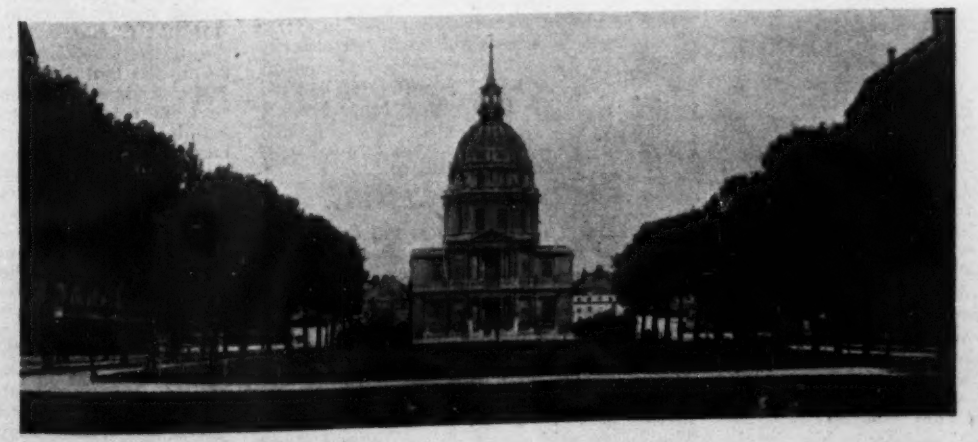
This pamphlet seems admirably adapted to awaken interest in the Act on the part of all those concerned, and we hope it will obtain a wide circulation.

Colley Hill, Reigate.

THE National Trust make appeal for 2,000*l.*, to meet a conditional promise of 1,000*l.*, so as to provide the 3,000*l.* which is required to secure this charming stretch of 60 acres of the Surrey North Downs, rising to 700 ft. above sea level, and traversed by the Pilgrims' Way, from spoliation. The executors of the vendor, Mr. George Taylor, have agreed to extend for a short time the option of purchase at a price of 7,700*l.* The offices of the Trust are at 25, Victoria-street, S.W.

Widening of High Holborn.

NEGOTIATIONS are opened by the Holborn Borough Council with the London County Council in the matter of widening the street, on the south side, between the Inns of Court Hotel and the Holborn Empire Theatre concurrently with the erection of the new premises for the Pearl Assurance Company



Paris: Avenue de Breteuil and the Invalides.
(From the *Town Planning Review.*)

Castleblayney.—Convent school; Mr. J. I. McDowell, architect, 27, Chichester-street, Belfast; Messrs. R. Ritchie & Co., builders, 85, North Queen-street, Belfast.

Castlerock.—Golf hotel; Messrs. Davidson & Miller, Richmond-street, Londonderry.

Cathcart.—Queen's higher grade school; Messrs. Thomson & Sandilands, architects, Blythswood-square, Glasgow. Thirteen houses, Muirend-road, for Messrs. John Emery & Sons, Nursery-lane, Strathbungo.

Cheshire.—Tower at Sandiway Church; Messrs. Marshall & Muspratt, architects, Chester; Messrs. Clegg & Sons, builders, Chester.

Childer Thornton.—School (3,780*l.*); Messrs. A. Fleming & Co., builders, Neston.

Clydebank.—Library; Messrs. Gardiner & White, architects, Glasgow.

Colne.—Weaving-shed (800 looms) for Messrs. S. Greenwood & Sons, Colne. Additions to hospital; Messrs. Holgate & Spivey, architects, Lloyd's-chambers, Market-street, Colne.

Drogheda.—Fifty houses; Borough Surveyor, Town Hall, Drogheda.

Dublin.—Foresters' hall; Mr. W. A. Scott, architect, 45, Mountjoy-square, Dublin.

Dundee.—Additions, West Green Asylum (1,200*l.*); Mr. T. M. Cappon, architect, 32, Bank-street, Dundee.

Durham.—Drill halls, Barnard Castle, Gateshead, and West Hartlepool; Mr. Hy. Chapman, architect, Grainger-street, Newcastle-on-Tyne. Block to University (2,500*l.*); Messrs. J. Potts & Son, Eldon-square, Newcastle.

Easington Colliery.—School (10,275*l.*); Mr. J. Hedley, builder, Newcastle.

Edinburgh.—Shops and warehouses, Easter-road, and Causewayside-buildings (2,200*l.*); Mr. T. J. Marwick, architect, 43, York-place, Edinburgh.

Flint.—School, Halkin-street (5,000*l.*); Mr. Sam Evans, County Architect, Mold.

Foleshill.—One hundred houses; Mr. W. McCarthy, builder, Ellys-road, Coventry.

Frodingham.—Alterations to iron and steel works (4,000*l.*); Mr. W. S. Walker & Son, 77, Lowgate, Hull.

Gainsborough.—Electric theatre; Mr. W. O. Eyre, architect, 18, Silver-street, Gainsborough.

Glasgow.—Playhouse, Charing Cross (22,500*l.*); Mr. W. B. White, 219, St. Vincent-street, Glasgow. Buildings, Vincent-street, and West Nile-street (20,000*l.*); Messrs. Campbell & Hislop, architects, 124, St. Vincent-street, Glasgow. Alterations and additions to residence, Albert-road (2,000*l.*); Messrs. J. Hamilton & Son, architects, 212, St. Vincent-street, Glasgow. Restoration of flour mills, Centre-street, for Messrs. Wm. Primrose & Sons, Ltd.

Gloucester.—Fire-station; Mr. R. Read, Surveyor, Guildhall, Gloucester.

Halifax.—Premises, High-road (1,500*l.*); Messrs. Clement Williams & Sons, Halifax.

Hanley.—Mining school, Victoria-road; Mr. S. B. Ashworth, Town Hall, Hanley.

Harrogate. — Conversion of Town Hall theatre into mechanotherapeutic institution (980*l.*); Mr. F. Bagshaw, Engineer, Town Hall, Harrogate.

Hinckley.—Hospital; Messrs. Walker & Heaton, architects, The Borough, Hinckley.

Ilkley.—Additions to King's Hall (3,000*l.*); Mr. T. H. Smith, Surveyor, Town Hall, Ilkley.

Irlam (Manchester).—Picturedrome; Mr. H. Booth, 42, Regent-street, Haslingden.

Jarrow.—Additions to Palmer Shipbuilding Company's offices; Mr. B. Gowan, general manager, Palmer Shipbuilding Company, Hebburn-on-Tyne.

Keighley.—Baptist Sunday-school, Albert-lane; Mr. A. P. Harrison, architect, High-field-lane, Keighley.

Laugho.—Additions to reformatory; Mr. H. Littler, architect, 16, Ribblesdale-place, Preston.

Leicester.—Church (15,000*l.*); Mr. W. D. Caroe, architect, 98, College-street, S.W.; Messrs. Collins & Godfrey, builders, The Cross, Tewkesbury.

Limerick.—Rebuilding St. Murchin's Church; Mr. B. E. F. Sheehy, architect, 57, George-street, Limerick.

Lisburn (Co. Antrim).—Erection of Brownlie Memorial School (2,500*l.*); Mr. Jas. Hunter, Beechwood, Antrim-road, Lisburn.

Littlehampton. — Fire-station; Mr. H. Howard, Surveyor, Town Hall, Littlehampton.

Llanelly.—Additions, Liberal Club; Mr. J. Evans, architect, Llanelly.

Londonderry.—Orange hall (1,800*l.*); Messrs. Robinson & Davidson, architects, Richmond-street, Londonderry. Church (1,800*l.*); Mr. J. P. McGrath, architect, 6, Castle-street, Derry.

Maryhill (Glasgow).—Additions to rubber works of Messrs. G. MacLellan & Co.,; Mr. Geo. Simpson, architect, 233, St. Vincent-street, Glasgow.

Newbridge.—School; Mr. J. Bain, Architect, Shire Hall, Newport, Mon.

Newcastle.—Hospital at workhouse; Mr. E. Bowman, architect, Westgate-road, Newcastle; Messrs. Davidson & Miller, builders, Newcastle.

Newlyn (Penzance). — Wesleyan school (2,200*l.*); Mr. Jas. Madden, architect, Morrat-road, Penzance.

Newton.—Additions to school; Mr. G. Widdows, St. Mary's-gate, Derby.

Oswestry.—School; Messrs. Willink & Thicknesse, architects, 14, Castle-street, Liverpool.

Outwood.—Power station and house, Lingwell Nook-lane, for the Yorkshire Electric Power Company.

Peterborough. — Alterations, court-house; Messrs. Townsend & Nordham, architects, Peterborough.

Porthcawl.—Church; Mr. Halliday, Diocesan Architect, Castle-street, Cardiff; Messrs. Vicary Brothers, builders, Barry Dock.

Reading.—Manual instruction centre, Wokingham-road (720*l.*); Messrs. R. Bell & Sons, builders, Caversham.

Rhondda Valley. — Workmen's institute (3,000*l.*); Mr. W. D. Morgan, architect, Victoria-chambers, Pentre, Rhondda.

Rogerstone (Mon.).—Golf clubhouse (2,200*l.*); Messrs. Phillip & Vaughan, architects, Prudential-buildings, Commercial-street, Newport, Mon.

Sacriston.—Literary institute; Mr. G. T. Wilson, architect, Durham-road, Blackhill.

St. Asaph.—Additions to workhouse; Mr. J. Hughes, architect, Denbigh.

Shirley (Soton).—School (14,600*l.*); Messrs. H. Stevens & Co., builders, 126, Above-bar, Southampton.

Silverton (Devon). — Reservoir; Messrs. Montague Luke and Partners, architects, 9, Princes-square, Plymouth.

Skipton.—Shops and offices, High-street (2,000*l.*); Mr J. W. Broughton, architect, 19, High-street, Skipton.

Sligo.—Operating theatre at infirmary; Mr. A. Murray, architect, 37, Dawson-street, Dublin.

South Bank (near Middlesbrough).—School (8,423*l.*); Mr. G. M. Radge, builder, Normanby, near Middlesbrough.

South Bank.—School (8,000*l.*); Messrs. Bottomley & Wellburn, architects, 38, Albert-road; Middlesbrough; Messrs. C. Brown, Ltd., builders, West Hartlepool.

South Moor.—Picture hall; Mr. E. Dyson, architect, Pelton. Institute (4,000*l.*); Mr. T. E. Taylor, The Grove, Lanchester, Co. Durham.

South Shields.—Block to workhouse (2,600*l.*); Messrs. J. H. Morton & Son, architects, Eastern Bank-chambers, South Shields.

Spennymoor.—Council offices, public hall, and market (15,000*l.*); Mr. G. T. Wellburn, architect, 38, Albert-road, Middlesbrough.

Springwell.—Extensions to premises of Windy Nook Co-operative Society (3,000*l.*); Messrs. Davidson & Miller, builders, Newcastle.

Stoke-on-Trent.—Fire-station (1,800*l.*); Mr. A. Burton, Surveyor, Town Hall, Stoke.

Stonehaven.—Alterations, premises, High-street, for Messrs. J. Jack & Sons, Ltd., net manufacturers.

Stonehouse (Plymouth). — Police-station (4,000*l.*); Mr. E. H. Harbottle, architect, The Castle, Exeter.

Strood (Kent).—Premises, Gun-lane, for the Rochester and District Co-operative Society.

Sunderland.—Church hall (2,000*l.*); Messrs. W. & T. R. Milburn, architects, Fawcett-street, Sunderland.

Swadlincote.—Extensions to Pottery Works for Messrs. T. G. Green & Co.

Swansea.—Fifty houses, Cwm-road (6,375*l.*); Messrs. J. Marles & Sons, builders, Swansea. Fifty-three houses, Trewyddfa Common; Mr. A. J. Colbourne, builder, Swindon. Plans have been passed as follows:—Rebuilding premises, Woodfield-street, Morriston, for Mr. L. B. Lewis; warehouse, 26-7, Orange-street, for Swansea Co-operative Society Company, Ltd. A plan has been lodged for four houses, Quar-road, Landore, for Messrs. Hughes & Morgan.

Taunton.—School, Priory Estate (5,880*l.*); Messrs. G. Pollard & Son, builders, Taunton.

Tavistock.—Isolation hospital; Surveyor, Urban District Council Offices, Tavistock.

Tibshelf.—School (5,000*l.*); Mr. G. Widdows, architect, St. Mary's-gate, Derby.

Tiverton.—Drill hall; Messrs. Ellis & Bowden, architects, Bedford-circus, Exeter.

Troon.—Picture theatre, Portland-street; Mr. John Wilson, Brandon-street, Motherwell.

Trowse.—Six houses, etc., Whitlingham Farm (2,430*l.*); Mr. A. E. Collins, Engineer, Town Hall, Norwich.

Upper Penn (Stafford). — School; Mr. Hutchings, Education Offices, Stafford.

Ushaw Moor.—Picture hall; Mr. Storey, architect, Cornsay Colliery.

Wattstown.—Two hundred houses; Mr. W. J. Jones, Surveyor, Town Hall, Rhondda, Glam.

Willing (Co. Durham).—Hospital (7,000*l.*); Mr. J. H. Gardner, Surveyor, Council Offices, Willington.

Winton (Bournemouth). — Congregational church (6,000*l.*); Mr. J. Donkin, architect, 58, Porchester-road, Bournemouth.

Witham.—Fire-station and isolation hospital; Mr. W. P. Perkins, Surveyor, Urban District Council Offices, Witham.

Wolverhampton.—Additions, Hordern-road school; Messrs. Fleeming Brothers, architects, Bank-chambers, Wolverhampton. Additions to Moorfield Works for the Sunbeam Motor Car Company, Ltd.

Wooler.—Improvements at St. Mary's Church (2,000*l.*); Mr. A. B. Plummer, architect, Newcastle; Mr. G. Beattie, builder, Wooler.

Worcestershire.—Mission hall, Dartmouth-road, Selly Oak; Alfred J. Dunn, F.R.I.B.A., architect, No. 1, Waterloo-street, Birmingham; Messrs. Thomas Loud & Sons, builders, Selly Oak.

Worstholme (Burnley).—School; Mr. R. Littler, architect, 16, Ribblesdale-place, Preston.

Yarmouth. — Additions, infirmary (5,000*l.*); Mr. A. S. Hewitt, architect, Regent-street, Yarmouth.

Yeovil. — One hundred houses; Messrs. Moggridge & Sons, builders, Queen-street, Taunton.

Yoker.—Electric sub-station off Ferry-road for Bull's Metal and Melloid Company, Ltd.

FOREIGN AND COLONIAL.

Labour in the Colonies.

From the Emigrants' Information Office, 34, Broadway, Westminster, S.W., we have received the April circulars of the Emigrants' Information Office, from which we learn that in *New South Wales*, in Sydney and suburbs, the building and iron trades, the sawyers and factory workers, have been well employed; and stonemasons, bricklayers, brickmakers, plasterers, carpenters, and joiners, and able-bodied labourers are in great demand. In *Victoria* employment continues to be very good, and assisted passages are now being granted to mechanics under forty-five years of age. There is a large demand for plasterers, boiler-makers, blacksmiths, moulders, plumbers, sheet metal workers, and electric light hands. —*South Australia* grants cheap passages to emigrants. Work of nearly all kinds is plentiful, and a large amount of money is being spent on public works. There is a good demand for bricklayers, masons, plasterers, carpenters, plumbers, ironworkers, brass finishers, coppersmiths, enginesmiths, and pick and shovel men.—The *Queensland* Government grants nominated passages to emigrants. There has been plenty of employment for most kinds of mechanics.—In *New Zealand* the demand for mechanics is not general, but the building trades have been busy nearly everywhere, and carpenters and joiners, bricklayers, plasterers, plumbers, gas-fitters, and building trade labourers are wanted in many places. The engineering trades have been fairly busy, but the supply of men is generally sufficient.—In the *Union of South Africa*, employment in the building and other trades in Johannesburg continues fairly active; but the supply of men is quite sufficient.

Extensions and Improvements in Rio de Janeiro.

According to the *Messager de São Paulo*, towards the end of last year Dr. J. T. de Alencar Lima submitted to the authorities of Rio de Janeiro comprehensive plans for the embellishment and improvement of the city. Provision is made in the plans for (1) the construction of six new large avenues with four large streets, the object being to link them up with the main avenue leading to the docks, and thus facilitate communication between the suburbs and the industrial quarters; (2) the erection of 7,000 blocks of residential flats capable of accommodating 300,000 people, as well as workmen's tenements for the accommodation of 20,000 individuals; (3) the laying of extensive underground pipes for draining the soil of torrential rains; and (4) the carrying out of sewerage works, the demolition of old quarters, the construction of quays and squares, and the laying out of gardens, &c. Commenting on this report, the British Acting Consul-General at Rio de Janeiro (Mr. E. Hambloch) states that he considers it unlikely that the scheme will be passed in its entirety, although parts of it may materialise, as has happened in the case of similar projects presented in recent years. Ultimately, he adds, it will be found necessary, in the interests of the city to carry out, in full, changes similar to those now presented.

THE NATIONAL PHYSICAL LABORATORY.

On the occasion of the presentation of the Annual Report of the General Board of the National Physical Laboratory on March 15 those invited to be present had an opportunity of inspecting the various departments of this most useful institution, accommodated partly in the fine old brick-built mansion known as Bushy House, and to a far more considerable extent in the new buildings that have been erected in the grounds.

In the Thermometry Department are the gas thermometer-room, with a thermometer fulfilling the duty of an ultimate high temperature standard up to 1,200 deg. C., apparatus for determining the softening points of refractory materials, a potentiometer and electric furnace for thermo-couple comparisons, and two furnace-rooms, one with appliances for the verification of high-range standard mercury thermometers, a platinum melting-point furnace, resistance-thermometers and pyrometers, and the other furnished with electrical furnaces of various types. Other rooms in the same department are occupied by equipment for testing mercury thermometers, flash-point apparatus for testing petroleum and lubricating oils, liquid air plant for low-range temperature verification, and apparatus for the determination of thermal conductivities of heat insulators.

The departments devoted to general electrical measurements and electrical standards are admirably equipped for the many delicate tests and measurements demanded in connexion with this important branch of physical science, and the Optics Department, devoted to tests of photographic lenses, microscopes, and general optical apparatus and materials, is one of much interest.

A separate building accommodates the Electrotechnics Division, including the Electrotechnical and Photometrical Departments.

Next in order comes the Engineering Department, under the direction of Dr. Stanton, where the equipment for testing structural materials includes horizontal and vertical testing machines, some half-dozen impact testing machines, gauge testing plant, and research apparatus. The latter comprises experimental channels for determining the resistance of plates and models in uniform currents of air and water, respectively, apparatus for determining the specific heat of steam, the rate of heat transmission from metal surfaces to gases in contact with them, for repeated load tests on reinforced concrete beams, and percolation tests on concrete slabs. In the grounds there are two experimental towers 60 ft. high, with revolving platforms 20 ft. long, for the study of wind-pressure on structures.

A new building belonging to the Engineering Department has recently been erected and equipped for testing the endurance of road surfaces and materials used in road construction.

The Metallurgy Department, under the direction of Dr. Rosenhain, is now housed in the new Wernher Building, with laboratories for Metallurgical Chemistry. The main building consists of a two-story block, measuring 100 ft. by 50 ft., with a workshop and foundry attached, and connected by a single story extension with the chemical laboratories. The ground floor is devoted principally to the cutting, grinding, polishing, and etching of metal sections, and their subsequent examination and microscopic photography. The workshop, formerly used as the Standard lathe-house, will be equipped with testing machines and machine tools, and the foundry provides for casting and handling metals in comparatively large quantities. The chemical laboratories include rooms and apparatus for steel analysis, alloy analysis, chemical work on cement and road materials, electro-chemistry, gas analysis, and spontaneous combustion research.

The Metrology Division is housed in a separate building, designed to meet the requirements of constancy of temperature for the main measuring rooms, to provide a long corridor suitable for the measurement of tapes, and to provide the requisite workrooms, offices, and accommodation for special warming plant. The eight main rooms are of the double-shell type, the walls and double glass ceilings being entirely within the outer walls and roofing, and the temperature is maintained at uniform level by automatic thermal regulators. Among the chief appliances in this division of the laboratory are the Blythswood ruling-machine, the 50-metre comparator for measuring tapes and wires, comparators for line standards of length and the calibration of scales, comparators for the accurate comparison of end standards of length, the Pratt and Whitney measuring-machine, Dr. Shaw's electric contact measuring-machine, Whitworth measuring-machine, screw and nut measuring-machines, standard scales gauges and templates, standard screw-cutting lathe, and other apparatus too numerous for individual mention.

The William Froude National Tank, 550 ft. long by 30 ft. wide by 12 ft. 3 in. deep, is constructed in a special building, where also is a smaller tank, 63 ft. long by 5 ft. wide by 3 ft. 3 in. deep. Although shipbuilding may not come within the professional practice of our readers generally, these tanks and their equipment are of extremely interesting character, and will thoroughly repay detailed inspection.

It is highly satisfactory to note the substantial progress made by the laboratory during the year which ended this month, and we trust that the invaluable work being done by the institution may lead to still greater financial support by the present and future Governments.

INTERNATIONAL SMOKE ABATEMENT EXHIBITION, ROYAL AGRICULTURAL HALL.

Bearing in mind the comparatively limited scope of this exhibition, it could scarcely be expected that so large a building as the Agricultural Hall would be filled to overflowing with apparatus and appliances intended to further the cause advocated by the Coal Smoke Abatement Society.

It is satisfactory to find that the main hall is fairly well filled and that the King Edward Hall is entirely occupied by a comprehensive display of electrical apparatus for light, heat, and power.

In the main hall the visitor will find ample proof of the efforts being made by many engineering firms to reduce the amount of smoke incidental to steam generation, and various improved types of coal and gas fired warming and cooking stoves and water heaters denote the activity of numerous other firms to cope with the unnecessary and wasteful consumption of fuel in private houses and buildings generally.

In the smaller hall electrical engineers demonstrate in a very practical way the justice of their claim that electricity is capable of abolishing smoke production entirely, so far as the consumer is concerned, although, of course, the generation of current must be attended by a certain proportion of smoke, except in cases where oil or gas is used as fuel.

In the following brief review of the principal exhibits we consider them for the convenience of readers under the heads of coal stoves and apparatus, gas stoves and apparatus, steam boiler auxiliaries, and electrical apparatus.

Coal Stoves and Apparatus.

The Carron Company (Stands Nos. 6, 7, and 8) make a comprehensive display of anthracite slow-combusion stoves, dog and other grates, including the Castle series, enamelled baths, and a kitchen range embodying the patent Blacktown fire and other recent improvements. The Blacktown fire, which can be adapted to Carron open and close fire ranges, is so constructed that the air, admitted by controlling ventilators and passing through the firedoor or bottom grate, becomes heated and promotes thorough combustion of the fuel. As the gaseous products are thereby raised to a temperature far in excess of that in an ordinary range the efficiency for cooling is increased and the fuel consumption reduced considerably. A further improvement is to be found in the pivoted shutter of the ashpan hopper, an arrangement excluding cold air and permitting ashes from the front fire to be tilted readily into the ashpan.

The foregoing improvements are embodied at the exhibition in a range of excellent design and finish. The place of the usual plate-rack is occupied by two hot closets with plate-glass doors; the ovens are fitted with duplex doors, the outer one of steel lined with insulating material and the inner one of plate-glass in steel frame for inspection without loss of heat; and the oven dampers are provided with quadrant indicators of neat design. We may add that the oven duplex doors are fitted with an ingenious latch enabling the cook to open both doors together or the outer one only at will.

A new type of electric cooking range exhibited by the Carron Company has been transferred to the electric restaurant, where it may be seen in operation, and we are informed that a second range of the kind will shortly be on view.

The Eagle Range and Gas Stove Company, Ltd. (Stand No. 9), show a "Premier" gold medal range with several novel features, a "new portable" range with oven and boiler, an "Imperial" grate with adjustable front bars and smoke-consuming back, "Premier" and "Governor" grates, an "Eagle" hot closet and independent hot-water boiler, and their "heat distributor" fitted to an ordinary firegrate for warming two or three additional rooms by hot-water radiators.

The "Premier" range, exhibited at work in the front of the stand, includes several recently patented improvements. The fire-box has a hinged front facilitating cleaning, the bottom grate can be raised or lowered with one hand, and hollow smoke-consuming cheeks are fitted at each side, and the back also where a boiler is not used. The cheeks, made of specially tough iron, have a series of gills cast on the back, and give up heat absorbed from the fire to air entering the bottom of the cheeks. The air thus superheated emerges through perforations at the top and, mixing with smoke, causes the latter to burst into flame, insuring perfect combustion and more rapid heating of the ovens and hot-plate. The smoke-abating action of this furnace are demonstrated in the range on view by the aid of talc windows in the flues. The ovens are fitted with duplex doors, the inner one being of glass and the outer one acting as a reflector for throwing light into the interior of the oven, so as to enable cooking operations to be watched even in a poorly lighted kitchen. Over the hot-plate are two ventilating canopy draught regulators and hot closets, and the special coal-saving dampers, now shown for the first time, are arranged so as to admit cold air to the main flue as the dampers are opened, thus obviating excessive heat and the consequent waste of fuel.

The "New Portable" range exhibited is a neat and compact stove very suitable for bungalows and other dwellings. It combines several new features and includes a powerful boiler for hot-water circulation.

The "Imperial" firegrate, with adjustable bars and draught doors, is a good example of a slow-combustion smoke-consuming grate, capable of perfect regulation. The heat-distributor fitted to one of these grates is in reality a small tubular boiler capable of providing sufficient hot water for two or three radiators and a towel horse, thereby utilising heat that would otherwise pass up the chimney to waste. A simple device permits the boiler to be thrown out of action when not required.

Messrs. McDowall, Steven, & Co., Ltd. (Stand No. 10), show examples of their "Lion" ranges and "Whiteflame" fires. The "Lion" range, shown at work, is constructed with a boiler and boiler flues of new design, patent soot collecting shelves are provided under the ovens to facilitate the removal of soot and the thorough cleaning of the flues, the ovens are fitted with an inner glass door and foot pedal releases, which allow the cook to have both hands free, and temperature indicators of new patterns are fitted to the oven doors.

The "Whiteflame" fire is of entirely new type on the underfeed principle. Visitors can judge for themselves from the stove in operation the justice of the claim made for this fire in respect of perfect combustion and smoke abatement.

The Interoven Stove Company, Ltd. (Stand No. 14), make a feature of Pascall's patent combination stove, comprising a slow-combustion grate behind which is a high-pressure circulating boiler, the fire back being formed by the underside of a hinged hot-plate, while the ornamental canopy above the furnace conceals a large oven. When closed the stove presents the appearance of an ordinary modern fireplace. By a simple movement it can be converted into an efficient kitchen range capable of cooking for eight to ten persons, the oven being equal to one of the size usual in a 36-in. range, and the hot-plate providing accommodation for four large saucepans. The apparatus is self-contained, and can be fitted with very little trouble or expense. For flats, maisonettes, and tenements it would be difficult to devise anything more useful than this combination stove, which weighs about 2 cwt. and measures 38 in. high by 20 in. wide by 14 in deep. The firm also show samples of their "Sunbeam" anthracite stoves of the type which has become so popular during recent years.

THE BUILDING TRADE.

THE IDEAL BUILDER.

WE have often heard it remarked, as a kind of protest against attaching too much importance to external circumstances, that the personal element is the determining factor in making or marring a man's success in life. This is undoubtedly so in relation to the building trade, although it may not be obvious to everyone; and it will have been realised by anyone who has met the ideal builder. What is the ideal builder? it may be asked. He is the man with a good all-round practical knowledge of every trade comprised in his work. He not only wishes to produce good building, but is competent to see that it is produced; and this applies equally to work that is hidden after completion and to that which always meets the eye. He is the man *par excellence* whom an architect would select —clients permitting—to give effect to his designs.

There are, happily, many builders who come near to the ideal standard; there are many who fall short of it in some degree; and there are some who may be said to miss it altogether. Imagine the head of a firm who has bought his way into a business from which older men approximating to the ideal type have retired or been removed by death. He owes his knowledge solely to a counting-house training, and, with the best intentions, cannot bring the fruits of practical experience to bear upon the work which is undertaken in his name. It might perhaps be asked, How should his ignorance affect the quality of the work, provided that he has competent men to act under his directions? Well, experience shows that such a man's control is not only ineffectual; not only is he liable to be deceived by those who work nuder him, but he will, himself, still, we say, with the best intentions, frequently obstruct the carrying out of thoroughly sound building work.

The personal element comes largely into play in the character of a builder's foreman. A capable and conscientious foreman will not allow bad work in any part of a building. His men are quick to learn the character of the person whose eye may be upon them at any moment. They, being paid by time, have nothing to gain by hurrying or scamping their work; and so a good foreman's task is an easy one, provided that he is not subjected to undue interference. On the other hand, when the foreman happens to be a "hustler," the result must be that much bad work is put into the building, especially in such matters as foundations and underpinning, which are soon to be concealed from view. The architect cannot possibly see every brick laid, and he must, in the absence of a clerk of works, rely largely upon the builder's foreman. Now if the builder is one of those men who fall so far short of the ideal standard as to have scarcely any practical knowledge of building, he will usually judge only by financial results. He will find that, where the foreman was a careful, conscientious man, the job did not pay so well as in another case where the foreman was a "hustler," and often has a good foreman been made to realise that he must "either hustle or get the sack." In the end he will be compelled to pass bad work, and the men will take their cue from him. Thus the personal influence of the head of a firm extends downwards to the poorest labourer in his employ.

As with the foreman and his master, so it may be with the managing director, who possesses a thorough knowledge of building work, and a Board to whom he stands accountable and who view affairs solely from the financial standpoint. He, poor man, may become a "hustler," much against his own will; he who has perhaps converted his business into a limited liability company may find himself, like Frankenstein, overmastered by a monster of his own creation.

Many of our readers are aware that the evils to which we refer have been on the increase for many years past. They are mainly the result of that feverish race for wealth which acts prejudicially to high ideals and goes far to ruin modern society. We see the causes of disease in operation. Whence, we may ask, is to come the remedy?

The cry has often been raised, especially in regard to building, that men no longer take pride in their work; they do not, we are told, love it for its own sake, as did the workmen of the Middle Ages. But it cannot be maintained that this is so with the majority of builders at the present time. Every day may be found instances to the contrary. True, we have not so many firms now whose heads have risen from the bench as were in existence, say, forty years ago. But the principle of survival of the fittest holds good, and must ever do so. In judging of building firms the personal element will always influence an architect's decision, and he will cast a favourable eye upon those approximating most nearly to the ideal standard. Thus the steady-going practical builder will be selected, when possible, in preference to the mere financier, and, though he may never become a millionaire, will hold his ground ultimately, neither playing for high stakes nor risking a stupendous disaster. The need for a sound practical training before attempting to enter the building trade if not recognised in advance may be learnt by unwelcome experience. The control of large firms by men who lack the necessary qualifications will sooner or later show itself to be unworkable. Meanwhile, young architects may be advised to exercise the closest discrimination when selecting builders to tender in competition.

THE "CEMENT GUN."

AN appliance first used on a large scale in building work for renovating the exterior of the World's Fair pavilions in Chicago, the so-called "gun," has been widely used in the United States and will probably find its way into this country as an American novelty, despite the fact that the same principle has been applied for many years past in painting and limewashing machines made by British firms. The cement gun, or spraying machine as we should prefer to term it, consists essentially of two vertical cylindrical chambers one on top of the other. The upper chamber is fitted with an inlet valve at the top and there is a similar valve between the two chambers, which are used for the reception of cement and sand in given proportions, and are provided with hand-worked beaters used for breaking up any lumps. At the bottom of the lower chamber is a flat wheel with deeply cut teeth, the wheel being rotated by a small air motor so as to carry a small quantity of the dry materials into the air current of a blow pipe and thence into a flexible hose terminating in a nozzle where water is added in the form of spray from a small independent hose pipe.

Leaving the nozzle at a velocity of 300 ft. per second the mortar deposited is denser and stronger than ordinary stucco, and it is claimed that as hydration takes place in transit immediately before and during the application of the mortar, the process of setting is not interfered with as occurs in mortar applied by hand.

In building construction the spraying machine has been used for coating steelwork, forming exterior and partition walls based on wire netting or tarred paper covered with netting, stuccoing timber and other houses, building fences, and for other classes of work where cement mortar is commonly employed.

LAND VALUATION.

THE Land Union announces the decision of the Official Referee under the Finance Act in the celebrated "Richmond Case." This was a case which gave rise to some comment, and questions were asked in the House of Commons about it. Some ladies inherited in 1910 a small dwelling-house and shop in Yorkshire. This property had been purchased by the father of these ladies for 500*l*., but the date of this purchase is not given in the report. The ladies paid death duties on 500*l*., and subsequently sold the property for 500*l*. The property was, however, valued as for the purposes of the Finance Act as being of the value of 380*l*. on the date fixed by the Act, April 30, 1909, and thus on the sale 22*l*. was claimed as increment value duty. The ladies had neglected to appeal from this valuation within the prescribed period, and it was by favour, after questions were asked in the House, that the matter was allowed to be reopened by appeal. The Referee has raised the total value by nearly 20 per cent., fixing it as on April 30, 1909, at 466*l*. 15*s*. Thus, if all the difference between this valuation and the price realised by sale is attributed to increment, the amount of the duty will be 5*l*. and not 22*l*., but it remains to be proved whether the site value has in fact increased in value.

In another case, the "Palmer's Green Case," recently reported by the Land Union, it has been held that a small profit realised on the sale of a leasehold property was not the subject of increment value duty, as there was no increase in the site value.

That hardships occur under the Act daily is common knowledge, as many persons cannot afford to appeal, but the point we now wish to draw attention to is the lack of any publicity being given to the decisions of the Referees. Unless there is a further appeal to the High Court the public have no knowledge of the course that is being pursued under the Act, and individuals may be paying taxes levied on a basis which has been held to be erroneous. The appeals to Referees thus appear in no way to simplify the administration of the Act. The public are much indebted to the Land Union for the course they are taking in publishing the decisions of the Referees.

THE LONDON ASSOCIATION OF MASTER DECORATORS.

A MEETING of the General Committee was held at the offices, 92, Queen Victoria-street, E.C., on the 11th ult., Mr. C. E. Wilkinson in the chair.

Trades Disputes Act.

The Secretary read letters received from the Employers' Parliamentary Council, the Prime Minister, and the Trades Disputes Act Reform League, and presented a copy of the proposed Bill. He explained that he had written to the Prime Minister, submitting that a deputation should be allowed to wait upon him, and the letter read was the reply to that request. The Prime Minister regretted his inability to receive a deputation.

The Chairman said that the only thing the Association could do was to support the Bill, using what influence it had with Parliamentary representatives.

The Secretary said he had asked in what way the Association could support the Employers' Parliamentary Council, and he had read the reply received.

The Chairman said that reply could not be acted upon, but he thought the Bill had the unanimous support of the members.

The petition was passed round the Committee and signed by the members.

Mr. Dakin suggested that the Association should signify its willingness to support the Bill and should say that, as Australia had shown the way, England ought not to mind taking the hint and doing the same.

Mr. Anderson thought it would be well to send a resolution to the London Master Builders, which they could attach to the memorial when they sent it in, and a letter might be sent direct to Lord Claude Hamilton to the same effect, unanimously supporting the recommendations.

Mr. Anderson thought that was all that could be done at the moment. The Secretary might be instructed to write to the Master Builders' Association, saying that the members present at the Committee meeting that evening had signed the petition, and cordially endorsed the action they were taking in the matter, and sent another resolution to Lord Claude Hamilton, informing him that the matter had been discussed by the Committee, which was unanimously in favour of the Bill he was promoting.

This was agreed to.

Mr. Anderson said it might be wise in writing to Lord Claude Hamilton to ask him in what way the Association could further assist the Bill. It might be that a memorial could be forwarded on the part of the Association at the next general meeting.

This was agreed to.

Mr. Dakin considered that it should be sent round to the other members of the Association so as to get as many signatures as possible.

The Chairman thought the petition might also be brought up at the general meeting and signed there. He did not think it was absolutely necessary that it should be signed only by members of the Association.

Mr. Anderson said the Secretary might obtain some memorial sheets for circulation.

Mr. Dakin suggested that a member of the Committee in each district might have a sheet to get signatures.

The Chairman agreed. As long as those who signed were employers or masters, it did not appear to matter whether they belonged to the Association or not.

London County Council Education.

The Committee proceeded with the consideration of the letter from the London County Council on the subject of technical education.

Mr. Anderson said that as there were several questions asked, which were more or less outside the Report submitted to the County Council, it would be better to have the matter referred to three or four members of the Educational Committee.

The Chairman said one or two questions were asked in the letter, which might be answered by the General Committee at once. For instance, names of firms represented on the Association who were prepared to guarantee employment to boys on the completion of their course of training, and the names of firms who would take the boys, were questions that might be answered straight away. He thought it might be said that all the firms in the Association would take them.

Mr. Anderson said there was no definite promise from firms. To say how many boys could be taken each year was rather a big thing. He did not know that a guarantee could be given that any firm would take a boy each year, because in four or five years that would mean four or five boys, and the thing was whether the firm could keep those boys going.

Mr. Dakin thought that was a question which could hardly be answered until the members had been written to for their views on the subject.

Mr. Milton asked whether it would not be safe to say that each firm would take one or more. A boy might not stop. He might get a chance of something better and might leave, or he might misbehave himself and be discharged.

The Chairman thought there would have to be a circular letter to the members before the question could be answered.

Mr. Anderson said the whole matter might be referred to a Sub-Committee of three to deal with. They could draft a form which could go out with the notice of the general meeting. It might be a means of bringing a few to the general meeting. This was agreed to, and on the motion of Mr. Milton, seconded by Mr. Rowden, Messrs. Anderson, Wilkinson, and Dakin were appointed the Sub-Committee.

Merchants' and Manufacturers' Terms to the Public.

The Secretary read a letter from the National Federation of Builders.

Mr. Anderson said the only thing the Association had done was to induce the principal wallpaper manufacturers not to supply the public direct at all except at gross prices. They could not prevent a merchant from supplying a private individual, if he was prepared to do it, at gross prices.

The Chairman thought it might be said that the efforts of the Association in the past had met with considerable success in obtaining discounts for the trade.

Mr. Anderson said in the circular Messrs. Sanderson's sent round they said they would not supply the public at all except through a decorator.

Mr. Dakin said that was the only firm who made that statement in writing. Most of the leading firms said they had always taken that line, and intended to continue to do so.

Mr. Anderson said that Messrs. Sanderson & Sons wrote to some 5,000 architects stating they could not in future supply them with paper, but any goods they required must come through a decorator. There were other firms who had declined to allow discount to any private individual except a small cash discount.

Mr. Dakin said an arrangement had been come to with the Wallpaper Manufacturers, Ltd., that in future there would be no public advertisement of a discount off wallpapers such as that which, up to that time, had been put in the windows of Whiteley's, Maple's, and similar firms. That was stopped through the agitation of the Association.

Mr. Anderson thought that was the agreement with most of the larger houses, that, provided it was general, they would agree not to exhibit advertisements with reference to discounts on paper.

Mr. Dakin said it was further suggested at that time by Messrs. Sanderson's, Lines, and several others, that in order to assist in carrying out the arrangements decorators ought not to deal with firms who gave more than a third discount off ordinary orders.

The Chairman said the reference in the letter was to merchants and manufacturers supplying the public with goods on trade terms, and the Association were asked what they were doing in the matter, and in what way the Federation could help the Association or the Association help them. He thought the reply might be that the Association were taking the matter up whenever they received information, and had been successful in dealing with the firms.

Insurance Act.

Mr. Dakin said that with reference to the Insurance Act, he had been in communication with various members of the Committee asking them to form a Committee to consider what the action of the Association should be in regard to the Act, and he had received replies from the Chairman, Mr. Rowden, Mr. Campbell, and Mr. Anderson, in favour of uniting with him to go into the pros and cons of the Act to see how it affected the employers in the decorating trade. By the time the quarterly meeting came along that Committee ought to have a concise form of objections to the Bill, and be able to say what procedure should be recommended to the Association, subject, of course, to the general meeting's approval. Part II. of the Act, dealing with unemployment, was rushed through the House with only eight or nine provisions discussed out of twenty-five. He failed to see that employers could submit to an Act passed in such an unconstitutional manner. He was strongly of opinion that the Association ought to be brought, if possible, to agree to object to the Act by making themselves passive resisters to the demand of the fees until such time as the Act met the views of the employers and of the working classes, who were affected by it as much as the employers.

The Chairman said unless there was resistance there would be no amendment.

The Secretary said that when the notice for the general meeting went out it might be stated that it was the intention to take the opinion of the Association on the Act at the meeting, and those who could not be present might be invited to send their views.

The Chairman agreed, and said at the same time it might be mentioned that the Report would be brought forward at the Special Committee.

Continuous Certificate of Discharge.

The Secretary submitted proof certificates, samples, and estimates of costs in connexion with the proposed continuous certificate of discharge.

On the motion of Mr. Rowden, it was agreed that the word "employment" should be substituted for the word "engagement" in one of the headings.

Mr. Dakin suggested that a larger number of entries should be allowed for on the cards.

Mr. Mellis suggested that the coat of arms of the Association should be on the outside of the card, and this was agreed to.

It was agreed that further estimates should be obtained from other firms for 1,000 or 2,000 cards.

Mr. Anderson said as soon as the card had been decided upon the Secretary should be instructed to write to a number of firms asking them to take the matter up, and saying the cards could be supplied at such-and-such a price, and also that if taken up it would be in the interests of themselves and of the men.

TRADE DISPUTES ACT.

In the House of Commons, on the 25th ult., Mr. Peto presented a petition from 134 members of the London Master Builders' Association praying that the number of pickets during trade disputes should be limited to two, and that pickets should be permitted to attend only the place where a person worked or exercised his business, and that all unions should be made responsible for the acts of its members.

GENERAL BUILDING NEWS.

CHURCH REPAIRS, NEWPORT, MON.

The report and plans of Mr. G. E. Halliday, F.S.A., of Cardiff, for the reparation and enlargement of the historic Parish Church of St. Woolos, Newport, Mon, have been adopted by the Vicar, the Rev. D. Griffiths, and Committee. The work is estimated to cost about 6,000*l.*

CHURCH, PORTHCAWL.

A new church is about to be erected at Porthcawl, Glam, to seat 600. Tender for the first section, to cost 4,500*l.*, has been accepted. The architect is Mr. G. E. Halliday, F.S.A., of Cardiff. The total cost is estimated at 6,500*l.*

ENLARGEMENT OF CHURCH, ABERDARE.

The extensive enlargement of St. Elvan's Church, Aberdare, Glam, has recently been completed at a cost of about 6,000*l.* from the designs of Mr. G. E. Halliday, F.S.A., F.R.I.B.A., of Cardiff.

COWBRIDGE PARISH CHURCH.

The report and plans of Mr. G. E. Halliday, F.S.A., for the reparation of Cowbridge Parish Church, Glam, at a cost of about 3,000*l.*, have been adopted by the Vicar and Churchwardens.

ROMAN CATHOLIC SCHOOL, MOORTHORPE.

This school has been erected at a cost of about 2,000*l.* from the designs of Mr. J. H. Eastwood, A.R.I.B.A., architect, of London. The contractors for the work were Messrs. Swift Brothers.

NEW SCHOOL, CHESTER.

Mr. Fairclough, of Warrington, was the builder of the new city and county school in Queen's Park, Chester, which has been erected from the designs of Mr. W. T. Lockwood, architect, of Chester. The new building contains a central hall, 46 ft. by 35 ft., and laboratories.

THE ADELPHI HOTEL, LIVERPOOL.

The hotel has been reconstructed from the plans prepared by Mr. Frank Atkinson, F.R.I.B.A. The new building consists of nine floors, is 120 ft. above the street level, and includes a French restaurant, Hypostyle hall, and a ballroom.

TRADE NEWS.

Under the direction of Mr. Fred Howorth, architect, Preston, Boyle's latest patent "air-pump" ventilators have been supplied to Fulwell Wesleyan Church, Preston.

The Houghall new Infectious Hospital, Durham, is being supplied with Shorland's warm-air ventilating patent Manchester stoves by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Owing to the increase of London business, Messrs. Richard Johnson, Clapham, & Morris, Ltd., appointed as their agent Mr. H. M. Kelk, who has now removed to larger and more convenient offices. In future his address will be 42 and 42A, Broad-street House, New Broad-street, E.C. Telegraphic address: "Crossways, London." Telephone No.: 6183 London Wall.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ACCRINGTON.—Ice-making premises, Argyle-street, for the Blackburn Crystal Ice Company, Ltd.

Banbury.—Workmen's dwellings; Messrs. Lucas & Lodge, architects, Hart-street, Bloomsbury, W.C.

Barrow.—School; Mr. A. Race, Surveyor, Town Hall, Barrow.

Batley.—Weaving premises, for Messrs. Hall, Tankard, & Co., Brookroyd Mills.

Belfast.—Additions to Park Lodge, for the Earl of Shaftesbury; Mr. H. Beaver, architect, Donegal-square, Belfast. Lecture hall; Mr. S. Stevenson, architect, 83, Royal-avenue, Belfast; Messrs. R. Curry, Ltd., builders, University-street, Belfast.

Bolton.—Nurses' home (4,500*l.*); Henderson & Brown, Fold-street, Bolton.

Bonnybridge.—Drill hall (2,500*l.*); Messrs. A. & W. Black, architects, 5, King's Arms-court, Falkirk.

Brymbo.—Drill hall for the Denbighshire Territorial Force Association; Mr. C. D. Rutter, architect, Parr's Bank-building-chambers, Wrexham.

Cambridge.—County offices (13,000*l.*); Mr. H. H. Dunn, County Surveyor, Central-chambers, Cambridge.

---

* See also our list of Competitions, Contracts, etc., on another page.

Castleblayney.—Convent school; Mr. J. I. McDowell, architect, 27, Chichester-street, Belfast; Messrs. R. Ritchie & Co., builders, 85, North Queen-street, Belfast.

Castlerock.—Golf hotel; Messrs. Davidson & Miller, Richmond-street, Londonderry.

Cathcart.—Queen's higher grade school; Messrs. Thomson & Sandilands, architects, Blythswood-square, Glasgow. Thirteen houses, Muirend-road, for Messrs. John Emery & Sons, Nursery-lane, Strathbungo.

Cheshire.—Tower at Sandiway Church; Messrs. Marshall & Muspratt, architects, Chester; Messrs. Clegg & Sons, builders, Chester.

Childer Thornton.—School (3,780*l.*); Messrs. A. Fleming & Co., builders, Neston.

Clydebank.—Library; Messrs. Gardiner & White, architects, Glasgow.

Colne.—Weaving-shed (800 looms) for Messrs. S. Greenwood & Sons, Colne. Additions to hospital; Messrs. Holgate & Spivey, architects, Lloyd's-chambers, Market-street, Colne.

Drogheda.—Fifty houses; Borough Surveyor, Town Hall, Drogheda.

Dublin.—Foresters' hall; Mr. W. A. Scott, architect, 45, Mountjoy-square, Dublin.

Dundee.—Additions, West Green Asylum (1,200*l.*); Mr. T. M. Cappon, architect, 32, Bank-street, Dundee.

Durham.—Drill halls, Barnard Castle, Gateshead, and West Hartlepool; Mr. Hy. Chapman, architect, Grainger-street, Newcastle-on-Tyne. Block to University (2,500*l.*); Messrs. J. Potts & Son, Eldon-square, Newcastle.

Easington Colliery.—School (10,275*l.*); Mr. J. Hedley, builder, Newcastle.

Edinburgh.—Shops and warehouses, Easter-road, and Causewayside-buildings (2,200*l.*); Mr. T. J. Marwick, architect, 43, York-place, Edinburgh.

Flint.—School, Halkin-street (5,000*l.*); Mr. Sam Evans, County Architect, Mold.

Foleshill.—One hundred houses; Mr. W. McCarthy, builder, Ellys-road, Coventry.

Frodingham.—Alterations to iron and steel works (4,000*l.*); Mr. W. S. Walker & Son, 77, Lowgate, Hull.

Gainsborough.—Electric theatre; Mr. W. O. Eyre, architect, 18, Silver-street, Gainsborough.

Glasgow.—Playhouse, Charing Cross (22,500*l.*); Mr. W. B. White, 219, St. Vincent-street, Glasgow. Buildings, Vincent-street, and West Nile-street (20,000*l.*); Messrs. Campbell & Hislop, architects, 124, St. Vincent-street, Glasgow. Alterations and additions to residence, Albert-road (2,000*l.*); Messrs. J. Hamilton & Son, architects, 212, St. Vincent-street, Glasgow. Restoration of flour mills, Centre-street, for Messrs. Wm. Primrose & Sons, Ltd.

Gloucester.—Fire-station; Mr. R. Read, Surveyor, Guildhall, Gloucester.

Halifax.—Premises, High-road (1,500*l.*); Messrs. Clement Williams & Sons, Halifax.

Hanley.—Mining school, Victoria-road; Mr. S. B. Ashworth, Town Hall, Hanley.

Harrogate. — Conversion of Town Hall theatre into mechanotherapeutic institution (980*l.*); Mr. F. Bagshaw, Engineer, Town Hall, Harrogate.

Hinckley.—Hospital; Messrs. Walker & Heaton, architects, The Borough, Hinckley.

Ilkley.—Additions to King's Hall (3,000*l.*); Mr. T. H. Smith, Surveyor, Town Hall, Ilkley.

Irlam (Manchester).—Picturedrome; Mr. H. Booth, 42, Regent-street, Haslingden.

Jarrow.—Additions to Palmer Shipbuilding Company's offices; Mr. B. Gowan, general manager, Palmer Shipbuilding Company, Hebburn-on-Tyne.

Keighley.—Baptist Sunday-school, Albert-lane; Mr. A. P. Harrison, architect, High-field-lane, Keighley.

Laugho.—Additions to reformatory; Mr. H. Littler, architect, 16, Ribblesdale-place, Preston.

Leicester.—Church (15,000*l.*); Mr. W. D. Caroe, architect, 98, College-street, S.W.; Messrs. Collins & Godfrey, builders, The Cross, Tewkesbury.

Limerick.—Rebuilding St. Murchin's Church; Mr. B. E. F. Sheehy, architect, 57, George-street, Limerick.

Lisburn (Co. Antrim).—Erection of Brownlie Memorial School (2,500*l.*); Mr. Jas. Hunter, Beechwood, Antrim-road, Lisburn.

Littlehampton. — Fire-station; Mr. H. Howard, Surveyor, Town Hall, Littlehampton.

Llanelly.—Additions, Liberal Club; Mr. J. Evans, architect, Llanelly.

Londonderry.—Orange hall (1,800*l.*); Messrs. Robinson & Davidson, architects, Richmond-street, Londonderry. Church (1,800*l.*); Mr. J. P. McGrath, architect, 6, Castle-street, Derry.

Maryhill (Glasgow).—Additions to rubber works of Messrs. G. MacLellan & Co.; Mr. Geo. Simpson, architect, 233, St. Vincent-street, Glasgow.

Newbridge.—School; Mr. J. Bain, Architect, Shire Hall, Newport, Mon.

Newcastle.—Hospital at workhouse; Mr. E. Bowman, architect, Westgate-road, Newcastle; Messrs. Davidson & Miller, builders, Newcastle.

Newlyn (Penzance). — Wesleyan school (2,200*l.*); Mr. Jas. Madden, architect, Morrat-road, Penzance.

Newton.—Additions to school; Mr. G. Widdows, St. Mary's-gate, Derby.

Oswestry.—School; Messrs. Willink & Thicknesse, architects, 14, Castle-street, Liverpool.

Outwood.—Power station and house, Lingwell Nook-lane, for the Yorkshire Electric Power Company.

Peterborough. — Alterations, court-house; Messrs. Townsend & Nordham, architects, Peterborough.

Porthcawl.—Church; Mr. Halliday, Diocesan Architect, Castle-street, Cardiff; Messrs. Vicary Brothers, builders, Barry Dock.

Reading.—Manual instruction centre, Wokingham-road (720*l.*); Messrs. R. Bell & Sons, builders, Caversham.

Rhondda Valley. — Workmen's institute (3,000*l.*); Mr. W. D. Morgan, architect, Victoria-chambers, Pentre, Rhondda.

Rogerstone (Mon.).—Golf clubhouse (2,200*l.*); Messrs. Phillip & Vaughan, architects, Prudential-buildings, Commercial-street, Newport, Mon.

Sacriston.—Literary institute; Mr. G. T. Wilson, architect, Durham-road, Blackhill.

St. Asaph.—Additions to workhouse; Mr. J. Hughes, architect, Denbigh.

Shirley (Soton).—School (14,600*l.*); Messrs. H. Stevens & Co., builders, 126, Above-bar, Southampton.

Silverton (Devon). — Reservoir; Messrs. Montague Luke and Partners, architects, 9, Princes-square, Plymouth.

Skipton.—Shops and offices, High-street (2,000*l.*); Mr. J. W. Broughton, architect, 19, High-street, Skipton.

Sligo.—Operating theatre at infirmary; Mr. A. Murray, architect, 37, Dawson-street, Dublin.

South Bank (near Middlesbrough).—School (8,423*l.*); Mr. G. M. Radge, builder, Normanby, near Middlesbrough.

South Bank.—School (8,000*l.*); Messrs. Bottomley & Wellburn, architects, 38, Albert-road; Middlesbrough; Messrs. C. Brown, Ltd., builders, West Hartlepool.

South Moor.—Picture hall; Mr. E. Dyson, architect, Pelton. Institute (4,000*l.*); Mr. T. E. Taylor, The Grove, Lanchester, Co. Durham.

South Shields.—Block to workhouse (2,600*l.*); Messrs. J. H. Morton & Son, architects, Eastern Bank-chambers, South Shields.

Spennymoor.—Council offices, public hall, and market (15,000*l.*); Mr. G. T. Wellburn, architect, 38, Albert-road, Middlesbrough.

Springwell.—Extensions to premises of Windy Nook Co-operative Society (3,000*l.*); Messrs. Davidson & Miller, builders, Newcastle.

Stoke-on-Trent.—Fire-station (1,800*l.*); Mr. A. Burton, Surveyor, Town Hall, Stoke.

Stonehaven.—Alterations, premises, High-street, for Messrs. J. Jack & Sons, Ltd., net manufacturers.

Stonehouse (Plymouth). — Police-station (4,000*l.*); Mr. E. H. Harbottle, architect, The Castle, Exeter.

Strood (Kent).—Premises, Gun-lane, for the Rochester and District Co-operative Society.

Sunderland.—Church hall (2,000*l.*); Messrs. W. & T. R. Milburn, architects, Fawcett-street, Sunderland.

Swadlincote.—Extensions to Pottery Works for Messrs. T. G. Green & Co.

Swansea.—Fifty houses, Cwm-road (6,375*l.*); Messrs. J. Marles & Sons, builders, Swansea. Fifty-three houses, Trewyddfa Common; Mr. A. J. Colbourne, builder, Swindon. Plans have been passed as follows:—Rebuilding premises, Woodfield-street, Morriston, for Mr. L. B. Lewis; warehouse, 26-7, Orange-street, for Swansea Co-operative Society Company, Ltd. A plan has been lodged for four houses, Quar-road, Landore, for Messrs. Hughes & Morgan.

Taunton.—School, Priory Estate (5,880*l.*); Messrs. G. Pollard & Son, builders, Taunton.

Tavistock.—Isolation hospital; Surveyor, Urban District Council Offices, Tavistock.

Tibshelf.—School (5,000*l.*); Mr. G. Widdows, architect, St. Mary's-gate, Derby.

Tiverton.—Drill hall; Messrs. Ellis & Bowden, architects, Bedford-circus, Exeter.

Troon.—Picture theatre, Portland-street; Mr. John Wilson, Brandon-street, Motherwell.

Trowse.—Six houses, etc., Whitlingham Farm (2,430*l.*); Mr. A. E. Collins, Engineer, Town Hall, Norwich.

Upper Penn (Stafford). — School; Mr. Hutchings, Education Offices, Stafford.

Ushaw Moor.—Picture hall; Mr. Storey, architect, Cornsay Colliery.

Wattstown.—Two hundred houses; Mr. W. J. Jones, Surveyor, Town Hall, Rhondda, Glam.

Willing (Co. Durham).—Hospital (7,000*l.*); Mr. J. H. Gardner, Surveyor, Council Offices, Willington.

Winton (Bournemouth). — Congregational church (6,000*l.*); Mr. J. Donkin, architect, 58, Porchester-road, Bournemouth.

Witham.—Fire-station and isolation hospital; Mr. W. P. Perkins, Surveyor, Urban District Council Offices, Witham.

Wolverhampton.—Additions, Hordern-road school; Messrs. Fleeming Brothers, architects, Bank-chambers, Wolverhampton. Additions to Moorfield Works for the Sunbeam Motor Car Company, Ltd.

Wooler.—Improvements at St. Mary's Church (2,000*l.*); Mr. A. B. Plummer, architect, Newcastle; Mr. G. Beattie, builder, Wooler.

Worcestershire.—Mission hall, Dartmouth-road, Selly Oak; Alfred J. Dunn, F.R.I.B.A., architect, No. 1, Waterloo-street, Birmingham; Messrs. Thomas Loud & Sons, builders, Selly Oak.

Worstholme (Burnley).—School; Mr. R. Littler, architect, 16, Ribblesdale-place, Preston.

Yarmouth. — Additions, infirmary (5,000*l.*); Mr. A. S. Hewitt, architect, Regent-street, Yarmouth.

Yeovil. — One hundred houses; Messrs. Moggridge & Sons, builders, Queen-street, Taunton.

Yoker.—Electric sub-station off Ferry-road for Bull's Metal and Melloid Company, Ltd.

FOREIGN AND COLONIAL.

Labour in the Colonies.

From the Emigrants' Information Office, 34, Broadway, Westminster, S.W., we have received the April circulars of the Emigrants' Information Office, from which we learn that in *New South Wales*, in Sydney and suburbs, the building and iron trades, the sawyers and factory workers, have been well employed; and stonemasons, bricklayers, brickmakers, plasterers, carpenters, and joiners, and able-bodied labourers are in great demand. In *Victoria* employment continues to be very good, and assisted passages are now being granted to mechanics under forty-five years of age. There is a large demand for plasterers, boiler-makers, blacksmiths, moulders, plumbers, sheet metal workers, and electric light hands. —*South Australia* grants cheap passages to emigrants. Work of nearly all kinds is plentiful, and a large amount of money is being spent on public works. There is a good demand for bricklayers, masons, plasterers, carpenters, plumbers, ironworkers, brass finishers, coppersmiths, enginesmiths, and pick and shovel men.—The *Queensland* Government grants nominated passages to emigrants. There has been plenty of employment for most kinds of mechanics.—In *New Zealand* the demand for mechanics is not general, but the building trades have been busy nearly everywhere, and carpenters and joiners, bricklayers, plasterers, plumbers, gas-fitters, and building trade labourers are wanted in many places. The engineering trades have been fairly busy, but the supply of men is generally sufficient.—In the *Union of South Africa*, employment in the building and other trades in Johannesburg continues fairly active; but the supply of men is quite sufficient.

Extensions and Improvements in Rio de Janeiro.

According to the *Messager de São Paulo*, towards the end of last year Dr. J. T. de Alencar Lima submitted to the authorities of Rio de Janeiro comprehensive plans for the embellishment and improvement of the city. Provision is made in the plans for (1) the construction of six new large avenues with four large streets, the object being to link them up with the main avenue leading to the docks, and thus facilitate communication between the suburbs and the industrial quarters; (2) the erection of 7,000 blocks of residential flats capable of accommodating 300,000 people, as well as workmen's tenements for the accommodation of 20,000 individuals; (3) the laying of extensive underground pipes for draining the soil of torrential rains; and (4) the carrying out of sewerage works, the demolition of old quarters, the construction of quays and squares, and the laying out of gardens, &c. Commenting on this report, the British Acting Consul-General at Rio de Janeiro (Mr. E. Hambloch) states that he considers it unlikely that the scheme will be passed in its entirety, although parts of it may materialise, as has happened in the case of similar projects presented in recent years. Ultimately, he adds, it will be found necessary, in the interests of the city to carry out, in full, changes similar to those now presented.

THE NATIONAL PHYSICAL LABORATORY.

On the occasion of the presentation of the Annual Report of the General Board of the National Physical Laboratory on March 15 those invited to be present had an opportunity of inspecting the various departments of this most useful institution, accommodated partly in the fine old brick-built mansion known as Bushy House, and to a far more considerable extent in the new buildings that have been erected in the grounds.

In the Thermometry Department are the gas thermometer-room, with a thermometer fulfilling the duty of an ultimate high temperature standard up to 1,200 deg. C., apparatus for determining the softening points of refractory materials, a potentiometer and electric furnace for thermo-couple comparisons, and two furnace-rooms, one with appliances for the verification of high-range standard mercury thermometers, a platinum melting-point furnace, resistance-thermometers and pyrometers, and the other furnished with electrical furnaces of various types. Other rooms in the same department are occupied by equipment for testing mercury thermometers, flash-point apparatus for testing petroleum and lubricating oils, liquid air plant for low-range temperature verification, and apparatus for the determination of thermal conductivities of heat insulators.

The departments devoted to general electrical measurements and electrical standards are admirably equipped for the many delicate tests and measurements demanded in connexion with this important branch of physical science, and the Optics Department, devoted to tests of photographic lenses, microscopes, and general optical apparatus and materials, is one of much interest.

A separate building accommodates the Electrotechnics Division, including the Electrotechnical and Photometrical Departments.

Next in order comes the Engineering Department, under the direction of Dr. Stanton, where the equipment for testing structural materials includes horizontal and vertical testing machines, some half-dozen impact testing machines, gauge testing plant, and research apparatus. The latter comprises experimental channels for determining the resistance of plates and models in uniform currents of air and water, respectively, apparatus for determining the specific heat of steam, the rate of heat transmission from metal surfaces to gases in contact with them, for repeated load tests on reinforced concrete beams, and percolation tests on concrete slabs. In the grounds there are two experimental towers 60 ft. high, with revolving platforms 20 ft. long, for the study of wind-pressure on structures.

A new building belonging to the Engineering Department has recently been erected and equipped for testing the endurance of road surfaces and materials used in road construction.

The Metallurgy Department, under the direction of Dr. Rosenhain, is now housed in the new Wernher Building, with laboratories for Metallurgical Chemistry. The main building consists of a two-story block, measuring 100 ft. by 50 ft., with a workshop and foundry attached, and connected by a single story extension with the chemical laboratories. The ground floor is devoted principally to the cutting, grinding, polishing, and etching of metal sections, and their subsequent examination and microscopic photography. The workshop, formerly used as the Standard lathe-house, will be equipped with testing machines and machine tools, and the foundry provides for casting and handling metals in comparatively large quantities. The chemical laboratories include rooms and apparatus for steel analysis, alloy analysis, chemical work on cement and road materials, electro-chemistry, gas analysis, and spontaneous combustion research.

The Metrology Division is housed in a separate building, designed to meet the requirements of constancy of temperature for the main measuring rooms, to provide a long corridor suitable for the measurement of tapes, and to provide the requisite workrooms, offices, and accommodation for special warming plant. The eight main rooms are of the double-shell type, the walls and double glass ceilings being entirely within the outer walls and roofing, and the temperature is maintained at uniform level by automatic thermal regulators. Among the chief appliances in this division of the laboratory are the Blythswood ruling-machine, the 50-metre comparator for measuring tapes and wires, comparators for line standards of length and the calibration of scales, comparators for the accurate comparison of end standards of length, the Pratt and Whitney measuring-machine, Dr. Shaw's electric contact measuring-machine, Whitworth measuring-machine, screw and nut measuring-machines, standard scales gauges and templates, standard screw-cutting lathe, and other apparatus too numerous for individual mention.

The William Froude National Tank, 550 ft. long by 30 ft. wide by 12 ft. 3 in. deep, is constructed in a special building, where also is a smaller tank, 63 ft. long by 5 ft. wide by 3 ft. 3 in. deep. Although shipbuilding may not come within the professional practice of our readers generally, these tanks and their equipment are of extremely interesting character, and will thoroughly repay detailed inspection.

It is highly satisfactory to note the substantial progress made by the laboratory during the year which ended this month, and we trust that the invaluable work being done by the institution may lead to still greater financial support by the present and future Governments.

INTERNATIONAL SMOKE ABATEMENT EXHIBITION, ROYAL AGRICULTURAL HALL.

Bearing in mind the comparatively limited scope of this exhibition, it could scarcely be expected that so large a building as the Agricultural Hall would be filled to overflowing with apparatus and appliances intended to further the cause advocated by the Coal Smoke Abatement Society.

It is satisfactory to find that the main hall is fairly well filled and that the King Edward Hall is entirely occupied by a comprehensive display of electrical apparatus for light, heat, and power.

In the main hall the visitor will find ample proof of the efforts being made by many engineering firms to reduce the amount of smoke incidental to steam generation, and various improved types of coal and gas fired warming and cooking stoves and water heaters denote the activity of numerous other firms to cope with the unnecessary and wasteful consumption of fuel in private houses and buildings generally.

In the smaller hall electrical engineers demonstrate in a very practical way the justice of their claim that electricity is capable of abolishing smoke production entirely, so far as the consumer is concerned, although, of course, the generation of current must be attended by a certain proportion of smoke, except in cases where oil or gas is used as fuel.

In the following brief review of the principal exhibits we consider them for the convenience of readers under the heads of coal stoves and apparatus, gas stoves and apparatus, steam boiler auxiliaries, and electrical apparatus.

Coal Stoves and Apparatus.

The Carron Company (Stands Nos. 6, 7, and 8) make a comprehensive display of anthracite slow-combusion stoves, dog and other grates, including the Castle series, enamelled baths, and a kitchen range embodying the patent Blacktown fire and other recent improvements. The Blacktown fire, which can be adapted to Carron open and close fire ranges, is so constructed that the air, admitted by controlling ventilators and passing through the firedoor or bottom grate, becomes heated and promotes thorough combustion of the fuel. As the gaseous products are thereby raised to a temperature far in excess of that in an ordinary range the efficiency for cooling is increased and the fuel consumption reduced considerably. A further improvement is to be found in the pivoted shutter of the ashpan hopper, an arrangement excluding cold air and permitting ashes from the front fire to be tilted readily into the ashpan.

The foregoing improvements are embodied at the exhibition in a range of excellent design and finish. The place of the usual plate-rack is occupied by two hot closets with plate-glass doors; the ovens are fitted with duplex doors, the outer one of steel lined with insulating material and the inner one of plate-glass in steel frame for inspection without loss of heat; and the oven dampers are provided with quadrant indicators of neat design. We may add that the oven duplex doors are fitted with an ingenious latch enabling the cook to open both doors together or the outer one only at will.

A new type of electric cooking range exhibited by the Carron Company has been transferred to the electric restaurant, where it may be seen in operation, and we are informed that a second range of the kind will shortly be on view.

The Eagle Range and Gas Stove Company, Ltd. (Stand No. 9), show a "Premier" gold medal range with several novel features, a "new portable" range with oven and boiler, an "Imperial" grate with adjustable front bars and smoke-consuming back, "Premier" and "Governor" grates, an "Eagle" hot closet and independent hot-water boiler, and their "heat distributor" fitted to an ordinary firegrate for warming two or three additional rooms by hot-water radiators.

The "Premier" range, exhibited at work in the front of the stand, includes several recently patented improvements. The fire-box has a hinged front facilitating cleaning, the bottom grate can be raised or lowered with one hand, and hollow smoke-consuming cheeks are fitted at each side, and the back also where a boiler is not used. The cheeks, made of specially tough iron, have a series of gills cast on the back, and give up heat absorbed from the fire to air entering the bottom of the cheeks. The air thus superheated emerges through perforations at the top and, mixing with smoke, causes the latter to burst into flame, insuring perfect combustion and more rapid heating of the ovens and hot-plate. The smoke-abating action of this furnace are demonstrated in the range on view by the aid of talc windows in the flues. The ovens are fitted with duplex doors, the inner one being of glass and the outer one acting as a reflector for throwing light into the interior of the oven, so as to enable cooking operations to be watched even in a poorly lighted kitchen. Over the hot-plate are two ventilating canopy draught regulators and hot closets, and the special coal-saving dampers, now shown for the first time, are arranged so as to admit cold air to the main flue as the dampers are opened, thus obviating excessive heat and the consequent waste of fuel.

The "New Portable" range exhibited is a neat and compact stove very suitable for bungalows and other dwellings. It combines several new features and includes a powerful boiler for hot-water circulation.

The "Imperial" firegrate, with adjustable bars and draught doors, is a good example of a slow-combustion smoke-consuming grate, capable of perfect regulation. The heat-distributor fitted to one of these grates is in reality a small tubular boiler capable of providing sufficient hot water for two or three radiators and a towel horse, thereby utilising heat that would otherwise pass up the chimney to waste. A simple device permits the boiler to be thrown out of action when not required.

Messrs. McDowall, Steven, & Co., Ltd. (Stand No. 10), show examples of their "Lion" ranges and "Whiteflame" fires. The "Lion" range, shown at work, is constructed with a boiler and boiler flues of new design, patent soot collecting shelves are provided under the ovens to facilitate the removal of soot and the thorough cleaning of the flues, the ovens are fitted with an inner glass door and foot pedal releases, which allow the cook to have both hands free, and temperature indicators of new patterns are fitted to the oven doors.

The "Whiteflame" fire is of entirely new type on the underfeed principle. Visitors can judge for themselves from the stove in operation the justice of the claim made for this fire in respect of perfect combustion and smoke abatement.

The Interoven Stove Company, Ltd. (Stand No. 14), make a feature of Pascall's patent combination stove, comprising a slow-combustion grate behind which is a high-pressure circulating boiler, the fire back being formed by the underside of a hinged hot-plate, while the ornamental canopy above the furnace conceals a large oven. When closed the stove presents the appearance of an ordinary modern fireplace. By a simple movement it can be converted into an efficient kitchen range capable of cooking for eight to ten persons, the oven being equal to one of the size usual in a 36-in. range, and the hot-plate providing accommodation for four large saucepans. The apparatus is self-contained, and can be fitted with very little trouble or expense. For flats, maisonettes, and tenements it would be difficult to devise anything more useful than this combination stove, which weighs about 2 cwt. and measures 38 in. high by 20 in. wide by 14 in deep. The firm also show samples of their "Sunbeam" anthracite stoves of the type which has become so popular during recent years.

The Sinclair Iron Company, Ltd. (Stand No. 15), exhibit one of their "Roseneath" firegrates fitted with a recently introduced backplate, increasing the glow and heating efficiency of the fire and making the grate available for burning ordinary coal, anthracite coal, or gas coke.

Messrs. O'Brien. Thomas, & Co. (Stands Nos. 104, 105, and 106) make a good display of anthracite stoves, firegrates, hospital ward stoves, and cooking ranges.

One of their stands is chiefly occupied by examples of the "Lasco" anthracite stove in various types. A very useful addition is the "Lasco" domestic boiler stove newly patented by the firm. The boiler is constructed of copper or gun-metal, and is arranged so that it can be cleaned without removing any part of the stove. Being heated by waste gases from the fire, the boiler is economical and provides constant supplies of hot water for domestic purposes, or may be applied to the warming of rooms or a conservatory, as may be desired.

The "Quadrant" range shown in the adjoining space embodies several new features, including an exceedingly simple and effective form of rising and falling grate, special dampers enabling the oven flues to be regulated in an efficient manner, and a new and very convenient type of clock-face temperature indicator. The range is also fitted with hot closets above the hot-plate, and has the indicating flue dampers now customary in high-class ranges.

The third space occupied by the firm is chiefly occupied by a selection of Boyd's "Hygiastic" ventilating stoves and grates and ventilating cowls. These stoves are now finished in porcelain enamel of any tint to match glazed brickwork, a method of treatment which saves labour, reduces the lodgment of dust, and imparts a pleasing appearance to the stoves.

The London Warming and Ventilating Company, Ltd. (Stand No. 109), have on view a varied assortment of their anthracite stoves and other apparatus, including the "Florence" patent boiler grate, for anthracite coal, for warming several radiators by low-pressure hot water from an open fire; and a continuous burning kitchener with enclosed mica front. This range is capable of heating the contents of a 40-gallon hot-water cylinder, and surplus heat is absorbed before the gases pass into the chimney. It is of the independent type and merely requires to be connected with the chimney by a length of flue pipe.

The Falkirk Iron Company (Stands Nos. 113, 114, and 115) make a representative display of cooking and warming stoves. The "George" range is completely self-contained and has iron flues throughout, facilitating the circulation of the gases and making the work of flue cleaning easy. The close and open fire flues are independent, thus avoiding impaired efficiency of the boiler when the open fire is in use. The furnace has hollow cheeks for heating air before admission, thereby conducing to complete combustion and the prevention of smoke. The fire bars are in the form of thin steel spindles, and the bottom grate is raised and lowered by a simple quadrant action protected from the fire. The oven doors are packed with silicate cotton and lined with white enamelled plates, and plate-glass inner doors are fitted for inspection. An ingenious double-action damper renders the baking oven suitable for ordinary baking, pastry cooking, or roasting, and the doors are opened by a pedal attachment. The company also exhibit Barker's "Hydro-Radiant" independent stove, which can be used to provide an open or close fire, and is fitted with a boiler for hot-water warming purposes. This type of stove can be applied for continuous burning, the combustion of the fuel being under complete control, and the boiler is so arranged that only waste heat is utilised for the boiler.

The "Era" anthracite warming stoves form another interesting series of exhibits, and a new type of warm air grate for hospitals and schools also deserves inspection. Various patterns of the "Pelham" fire are exhibited, and the "Orbit" hot-air controlled combustion stove, handsomely designed in the Adams style, is a distinct novelty. This is an independent stove for ordinary fireplaces suitable for coal or coke.

Gas Stoves and Apparatus.

The Shannon Engineering Company (Stand No. 3) exhibit a new type of water-heater with Bunsen type gas-burner and capable of boiling small or large quantities of water with great rapidity.

Messrs. Bilbie, Hobson, & Co. (Stand No. 4) make a small but interesting display, including two of their Hornsby-Stockport gas engines, a Marsh & Thorp combined blower and governor for high-pressure gas lighting, a Marsh & Thorp combined anti-pulsator and governor for supplies to gas engines, and high-pressure gas burners of 100 candle-power used for illuminating the exhibit.

The James Keith and Blackman Company, Ltd. (Stand No. 26), exhibit gas compressors with the capacity of 2,000 cubic feet per hour, and supplying forty-six Keith lamps of 1,500 candle-power used for lighting part of the exhibition.

Messrs. Ewart & Son, Ltd. (Stands Nos. 56 and 69), have on view a large number of their geysers, "Califonts," and appliances for the rapid heating of water in quantities from 1 to 10 gallons per minute.

The Cannon Iron Foundries, Ltd. (Stands Nos. 58 and 67), have arranged a comprehensive assortment of their gas-heating specialities, including gas fires, gas-heated radiators, gas cooking stoves, boiling burners, washing boilers, and gas irons, in addition to representative specimens of "Porceliron" sanitary ware and fittings. This is a stand that should not be overlooked by the visitor.

Messrs. R. & A. Main, Ltd. (Stands Nos. 71 and 86), exhibit some interesting examples of their gas fires and cooking stoves, the "St. Nicholas" fire being one representing a successful attempt to invest the gas fire with the cheerful aspect of an ordinary coal fire.

Messrs. D. Anderson & Co. (Stands Nos. 70 and 87) exhibit their "Dacolight" lamps of high candle-power for high or low pressure gas, some of these being used in lighting the exhibition.

The Gas Companies' joint exhibit (Stands Nos. 72-75 and 82-85) is one deserving careful inspection. It includes stoves, boilers, furnaces, and other gas fired appliances by the Davis Gas Stove Company, Ltd., Messrs. Fletcher, Russell, & Co., Ltd., The Richmond Gas Stove and Motor Company, Ltd., Messrs. Wilsons & Mathiesons, and the John Wright and Eagle Range, Ltd.

The Foster Engineering Company, Ltd. (Stand No. 92), make a feature of their gas governor.

Messrs. C. E. Podmore & Co. (Stand 106B) exhibit some of their high-power gas lamps for interior and exterior lighting.

Messrs. J. Marse & Co., Ltd. (Stand No. 112), show specimens of their "Visco-Marse" incandescent gas burners of the upright and inverted types, mantles, and auxiliaries.

Messrs. Tilley Bros. (Stand 116) show one of their "Hot Ray" gas fires controlled by a governor which can be fitted to any grate, and their system of high-pressure gas lighting.

Steam Boiler Auxiliaries.

In view of the continually increasing employment of steam boilers in architectural practice, we cannot appropriately pass by the exhibits coming under this head, which relates to appliances intimately connected with the question of smoke abatement.

The Underfeed Smokeless Fire Syndicate (Stand No. 5) exhibit the "Bowden" smokeless firegrate, applicable to domestic stoves and boilers, as well as to steam boilers.

Mr. W. Whitaker (Stand No. 19) makes a special feature of his cooking stoker and sprinkler stoker for Lancashire and other boilers.

Messrs. Babcock & Wilcox, Ltd. (Stand No. 20), devote a large share of their stand to the patent chain grate stoker designed for the smokeless combustion of semi-bituminous coal.

The Smoke Consuming Company, Ltd. (Stand Nos. 32 and 51), exhibit the "Thomas" apparatus for preventing the emission of smoke from tall chimneys without altering any of the existing fittings, except the boiler furnace front and fire bridge.

Messrs. Edward Bennis & Co., Ltd. (Stands Nos. 35 and 48), have an interesting boiler house exhibit, comprising a complete smokeless stoking machine and coal and ash handling plant, and different types of the "Bennis" stoker.

The Metallbank and Metallurgische Gesellschaft A. G. (Stand No. 89) exhibit the ingenious smoke dissipator invented by Professor Wislicens, and of which an account was given some time ago in our columns.

Messrs. J. Ruscoe & Co., Ltd. (Stands Nos. 91 and 101), exhibit their "Auto" mechanical stoker.

Messrs. J. & P. Hill (Stands Nos. 118-120) show an installation of the Galloway-Hill furnace, which the makers claim enables the cheapest kind of coal to be burned without the production of smoke.

Electrical Apparatus.

The display of electrical appliances in the King Edward Hall was organised by the Electric Supply Publicity Committee, and is intended to appeal strongly to householders. The exhibits are grouped in various sections instead of being placed on stands occupied by individual firms. Therefore the character this part of the exhibition is quite different from that in the main hall.

The cooking department of the electric restaurant is open to inspection by visitors, and serves as a practical demonstration of the cleanliness and convenience of electric cooking apparatus.

The cooking section in another part of the hall comprises specimens of various electric cooking utensils, the heating section is devoted to electric radiating and convecting heaters, and another section is occupied by electrically-heated irons for laundry work. Each section is under the charge of attendants who are ready to explain the working of the appliances, and catalogues relating to electrical manufactures of every kind can be obtained at the stall of the Electric Supply Publicity Committee.

BOOKS.

School Planning: Being a Practical Treatise on the Planning of British Training Colleges and Schools. By PHILIP A. ROBSON. (London: Nicholson & Smith, 3, Amen-corner, E.C.)

MR. P. A. ROBSON'S recently-published treatise on school planning appears to be the outcome of a lecture delivered by the author before the class for school nurses and health visitors of the Royal Institute of Public Health. And so, naturally enough, the important subject of hygienic planning in relation to school buildings, more particularly with regard to public elementary schools, is discussed at considerable length. For instance, the book contains some good practical advice relative to the choice of sites and playgrounds, followed by the enumeration of administrative and hygienic considerations which affect the planning of entrances and staircases, classrooms, assembly-halls, cloakrooms, etc.

A well-arranged table of data, extracted from the building regulations of the Board of Education, which will be found extremely useful for ready reference, is an admirable feature of the work.

The chapter on recent elementary school building in Derbyshire comprises a series of interesting notes extracted from a paper read by the Architect of the Derbyshire Education Committee before the Royal Sanitary Institute in February, 1910. In this paper its author, Mr. G. H. Widdows, A.R.I.B.A., suggests that the limit of the number of children which can be effectively supervised by a head teacher varies from 250 to 350, and that as a rule there should not be more than six classrooms, comprising two rooms for sixty and four for fifty children.

"This is, of course, on the large size, but 10 sq. ft. per child is not too much, and when the higher elementary basis of 12 sq. ft. per child is introduced, as possibly it will be in days to come, or when the number of children for which individual teachers are recognised is still further reduced, then these rooms will accommodate forty and fifty respectively."

It is also urged in favour of a six-roomed school that it enables the three infant classes to be duplicated, and in the case of the older pupils each standard has a room to itself, for, owing to the smallness of their number, children in Standards VI. and VII. are almost always taken together.

The typical plans of elementary and other school buildings recently erected in Derbyshire which illustrated Mr. Widdows's paper are full of interest as examples of a praiseworthy effort to bring about an improvement in the hygienic conditions of school life.

But, although the plans given in illustration of the author's views show marked variation in their general treatment, yet they are similar to the extent that in all cases the classrooms are provided each, in a greater or less degree, with direct cross lighting and ventilation, and so, whatever its aspect or

position in the building, sunshine is sure to reach each room during some portion of the day.

In several cases open verandahs, or covered ways, take the place of ordinary enclosed corridors, and thus not only do the class-rooms open direct into the fresh air, but the cloakrooms are adequately cross-ventilated.

The fenestral treatment advocated by Mr. Widdows has much to commend it. Windows placed in the end gables of classrooms are fitted with swing lights fixed at a height of 9 ft. 6 in. from the floor, and they are thus well above the eye of the teacher. Those in the side walls have hoppers at the sill level and swing lights above.

These hoppers, which only open to the extent of 4 in., are formed with a deep rebate at the top and provided with a wind-shield to force the incoming air to travel in an upward direction.

As to the heating of the classrooms, in addition to open fireplaces, low-pressure hot-water ventilating radiators having a heating surface of 25 sq. ft. per 1,000 cubic ft. of contents are fixed in each room.

The glass area provided is equal to one-fifth of the floor area of the room; all class-rooms are 11 ft. in height to the wall-plate and 14 ft. to the ceiling.

"Cross-lighting and cross-ventilation add little, if anything, to the expense. The price paid has varied from 9*l.* 9s. to 13*l.* 13s. per head, and one may say that under ordinary conditions a six-roomed school costs 11*l.* 11s. per head This includes boundary walls, playgrounds, out-offices, and main building, but not site and furniture nor special buildings, such as cookery and manual centres."

With regard to higher elementary, secondary, and technical schools, Mr. Robson discusses the modern tendency to disconnect the assembly-hall from the classrooms by means of intervening corridors. In schools planned for higher education the use of the hall is much more extended than in an elementary school—*e.g.*, for concerts, prize distributions, gymnastic displays, examinations, and "even drawing if there be no proper art-room. The two objects gained by a central hall of the old type are cheapness and ease of supervision. The defects of the plan are more difficulties of ventilation and the restricted use of the hall to avoid disturbing classes."

Facilities for constant supervision are always necessary in elementary education, and so in schools teaching higher "elementary" subjects the enclosed hall may well remain. But both in secondary and technical schools the assembly-hall should be well isolated from the neighbouring classrooms.

Schools intended for higher elementary education should contain—in addition to the ordinary class and lecture rooms—suitable accommodation for teaching such subjects as elementary chemistry and physics, laundry-work, cooking, general needlework, and art, and there should be one or more workshops. Notes on the arrangement, lighting, and equipment of these special rooms or departments are followed by some valuable suggestions with regard to the planning of training colleges, and the treatise concludes with copious extracts from the reports of Departmental Committees having reference to the cost of school buildings in various parts of the United Kingdom.

Mr. Robson's book will doubtless prove of great service to all who are interested in the advancement and development of school planning.

History of Bridge Engineering. By HENRY GRATTAN TYRRELL. (Chicago, 1911. Published by the Author. Octavo. Pp. 447.)

IT is no easy task to bring so large a subject within the compass of a book such as this. That Mr. Tyrrell has been entirely successful in his method of compression can hardly be admitted; but he, to some extent, disarms criticism on this point by explaining that it has been prepared as the historical part of a prospective comprehensive work on bridge engineering, and on this account the theory and methods of design are carefully excluded. The initial conception of the book is good. After a brief introduction dealing with early periods, we find bridges classified according to the structural principles, commencing with modern stone bridges, and in subsequent chapters treating of wooden bridges, cast-iron bridges, truss bridges, suspension bridges, cantilever bridges iron and steel arches, trestles and viaducts, and, lastly, solid concrete bridges. A vast mass of statistical information on the hundreds of examples included will doubtless give the book considerable value as a work of reference, although it necessarily detracts somewhat from the literary interest. It would have been far better to have given this information in tabular form so as to avoid the necessity of encumbering the descriptions with particulars of cost and dimensions. Uniformity in the scale of the diagrams would have assisted comparison, which, after all, is the most important point, while dimensions, etc., would be much easier to find in a table than scattered through the text. It should also be understood that the subject is approached mainly from the point of view of the constructor, and, while many bridges of marked beauty are illustrated, the author evidently feels that it would widen the scope of his work too much to go into questions of æsthetics.

Practical Sewerage and Sewage Disposal. By H. C. H. SHENTON, F.S.E., M.I.Mun.E., M.R.San.I. (S. Edgecumbe Rogers, 27A, Farringdon-street, E.C. Price 3s. 6d. net.)

INSTEAD of describing many methods and appliances, good and bad, from which the reader is left to draw his own conclusions, definite practical recommendations are given in this work as far as possible, so that those who have actually to carry out work can obtain from the book very useful advice. The whole of the book is arranged in paragraphs which are numbered, and in addition to the usual chapter headings there are many sub-headings which indicate clearly the various matters dealt with in each chapter. The book has been kept at a size which makes it suitable for the pocket. The general design, construction, and maintenance of sewers are described, and the recommendations with regard to the design, construction, and management of sewage disposal works and land treatment are based upon the latest developments in this work, and particularly upon the Reports of the Royal Commission on Sewage Disposal. We are glad to call attention to a useful little book.

Refrigeration, Cold Storage, and Ice-Making. By A. J. WALLIS-TAYLER, A.M.Inst.C.E. Third Edition. 414 Illustrations. (London: Crosby Lockwood & Son. 1912. Pp. 632. 10s. 6d. net.)

IN this treatise is included the third edition of a smaller work, entitled "Refrigerating and Ice-Making Machinery," the combined treatise discussing a good many technical matters that come more strictly within the province of the engineer than of the architect. But, as often happens, the architect is expected by his clients to know everything, and therefore he will find a great deal of valuable information even in the engineering part of the book. The chapters on "Refrigeration and Cold Storage" and on "Manufacturing, Industrial, and Constructional Applications" are specially interesting to architects because they deal with the design and arrangement of cold storage chambers, giving data and illustrations of practical value. The book is an excellent guide for all concerned in the subject.

LEGAL COLUMN.

Surveyors' Fees.

It is curious how often in contracts drawn up relating to important transactions between business persons some material point is left open which subsequently necessitates litigation. In the recent case, Reading Industrial Co-operative Society *v.* Palmer, the plaintiffs had purchased some land from the defendants for building purposes, and it was a term of the contract that the buildings erected thereon should be approved by the vendor's surveyor, but the contract was silent as to who should pay the surveyor's fees. The defendants endeavoured to set up a custom that in such cases the fees, in the absence of special agreement, should be paid by the purchaser but they failed in showing this, and on the evidence the Court held that there was no such custom—at any rate in Berkshire, where the land was situated. Then it appears to have been argued that as the approval of the plans was material to the purchaser the burden ought to fall upon him. The Court, however, did not accept this view, but held that the covenant was for the interest of the vendor, restricting the user of the land which otherwise the purchaser would have been entitled to use without restriction, and that the surveyor was instructed and retained by the vendor, who conferred upon him the authority to approve plans, and in such circumstances the person who retained the surveyor was the person to pay him.

Trade Union Law.

The case—Russell *v.* Amalgamated Society of Carpenters (noted the *Builder*, January 29, 1910) has been carried to the House of Lords. The claim was that of a widow of a deceased member of the trade union in respect of certain sick and superannuation benefit which she alleged was due to her husband before his death, and in the alternative she claimed a return of the money paid by him to the society; but the merits of the case had not to be considered by the Courts because the union raised the contention that by reason of the Trade Union Acts the Courts had no jurisdiction to entertain the action.

The history of the case is somewhat peculiar. In the Court of First Instance it was held that this was a proceeding to recover damages for the breach of an agreement to provide benefits for members which sect. 4 of the Trade Union Act, 1871, prohibits the Courts from entertaining (see the *Builder*, May 22, 1909). In the Court of Appeal this question was not argued, but it was contended that the rules of the society were such that it was not a society whose objects were in restraint of trade, or if some of its objects were so illegal, yet they could be dissevered, and consequently an action would lie at common law quite apart from the Trade Union Acts. The Court of Appeal decided that many of the rules were in restraint of trade and illegal, and they could not be disconnected, and therefore no proceedings could be taken at common law.

In the House of Lords, according to the report in the *Times*, the majority decided the case on the same grounds as the Court of First Instance, and no opinion was expressed by them on the points raised in the Court of Appeal. Lord Robson, however, dealt with the point, and he held that since under one of the rules members of the union subjected themselves to fine and suspension, or even to expulsion, if they did not comply with the decision of the Committee as to strikes, and obey the trade union rules of the district, and bound themselves not to work under a sub-contract or on work "made under unfair conditions," the union was illegal in the sense that its objects were in restraint of trade, and he held that the sickness and superannuation benefits could not be dissevered, as there was no distinction made in respect of these objects, nor any separation in the funds. In the report of this case in the "Weekly Notes" it appears that the majority of the Lords decided the case on this point also, and as it has been the cause of much litigation this would be most satisfactory.

Powers of Corporations; Municipal Trading.

A case, Attorney-General *v.* Mayor, etc., of Sheffield, which occupied one of the Chancery Judges for some days, again raises the question whether a Corporation with powers to supply electrical current has also power to engage in trade and supply fittings. Similar questions were raised some time back in a case before Mr. Justice Neville, Attorney-General *v.* Corporation of Leicester (the *Builder*, July 9, 1910); but in the present instance both parties have intimated their intention of carrying the case to the House of Lords. The action was brought at the relation of a ratepayer to restrain the Corporation from (a) within their area of supply (1) erecting and installing electric-light fittings, wiring houses, and fixing and installing electric bell fittings and apparatus for domestic telephones; also through sub-contractors installing lightning conductors. These things were supplied to persons, whether they took current or not. (2) Keeping a depôt for the display of such articles and fittings. (3) Executing repairs. (4) Cleaning and maintaining arc lamps. (b) Outside the area of supply, from supplying motor fittings and accessories for electric motors and similar things to those enumerated above.

The funds employed were obtained by the statutory powers conferred upon the Corporation for its electrical undertaking.

The Court held that the case was practically covered by the decision of Mr. Justice Neville, and that neither under the Municipal Corporations Act, 1882, nor under the Sheffield Corporation Act, 1903, was the Corporation entitled to carry on the above operations.

In our note to the case before Mr. Justice Neville we pointed out that there was a distinction between the Electric Lighting Act,

1882, and the Gasworks Clauses Act, 1847. The latter confers certain powers to supply fittings, whereas the former Act does not.

Vendor and Purchaser.

In the purchase of freehold or leasehold property it very often happens that the intending purchaser inspects the property and, thinking it will suit him, makes a tentative offer without having professional advice, with a view to ascertaining whether the vendor is likely to come to terms with him before going to further expense. This, indeed, may be said to be the ordinary practice; therefore a recent decision of a Judge of the Chancery Division in the case of Von Hatzfeldt-Wildenburg *v.* Alexander ("Law Reports") is of especial interest to intending purchasers. The subject-matter of the dispute was a leasehold house in Grosvenor-square, and the only contract was contained in three letters which passed between the vendor's and purchaser's agents. In the first letter the agents said that their client was willing to accept 25,000*l.* for the lease. The purchaser's agent then wrote accepting the house at that price, but subject to certain conditions. Two of these conditions were (1) that the purchaser's solicitors should approve "the title to and covenants contained in the lease, the title from the freeholder, and the form of contract"; (2) that the purchaser approved her surveyor's report. The vendor's agents then wrote accepting the purchaser's offer. The purchaser did not approve her surveyor's report, and demanded from the vendor a contribution of 1,000*l.* towards certain wants of repair and deficiencies. The vendor then withdrew the offer to sell, and the purchaser commenced an action claiming specific performance of the contract contained in these letters.

It is to be remembered that it was the intending purchaser who was seeking to enforce the contract, and therefore it is to be presumed she intended to waive the conditions, such as approving surveyor's report. The decision turned upon that condition as to the approval of title, etc., and the Court held that as the purchaser's solicitors were to approve the freehold title, which could not be called for on an open contract for the sale of a lease, this condition could not be treated as a mere expression of the desire of the parties as to the manner in which a transaction already agreed to should be carried out, but it was a real condition showing the contemplation of the execution of a more formal document to complete the contract, and the letters in themselves, therefore, did not constitute a binding contract.

Extraordinary Traffic on Highways.

The case of Colchester Corporation *v.* Gepp and King ("Law Reports") throws some additional light on that complicated branch of the law relating to extraordinary expenses incurred on the highways by reason of damage caused by excessive weight or extraordinary traffic. The plaintiffs in the action were the highway authority, the defendants were the Corporation and a contractor who had entered into a contract with them for the erection of certain buildings in connexion with the lunatic asylum.

By their statement of claim the plaintiffs alleged that extraordinary expenses had been incurred on Mile End Road, Colchester, as shown by the certificate of their Surveyor, having regard to the average expense of repairing the highways in the neighbourhood. The expenses were placed at 1,577*l.* 11s. 9d. From further particulars obtained by an order of the Court, it apeared that the above sum was arrived at by deducting 217*l.* 8s. 4d., from the actual expense of repairing the road, and that this latter sum represented the average for one year of the expenditure of repairing the said road. The defendants applied to the Court for further particulars of the average expense of "similar highways," and the Court of Appeal has now affirmed the Court below in making this order.

To appreciate the importance of the point it is necessary to glance at the Highway Acts and the recent decision of the Court of Appeal in Billericay Rural District Council *v.* Poplar Union.

Sect. 23 of the Highways and Locomotives Act, 1878, as subsequently amended, provides—"Where by a certificate of their Surveyor it appears . . . that, having regard to the average expense of repairing highways in the neighbourhood, extraordinary expenses have been incured by such authority in repairing such highway by reason of the damage caused by excessive weight passing along the same, or extraordinary traffic thereon, such authority may recover . . . such expenses as may be proved to the satisfaction of the Court to have been incurred. . . ." In the Billericay case the Court of Appeal held that the latter part of the section means the expenses defined in the earlier part of the section to be ascertaind by the Surveyor by reference to the average expenditure of repairing similar roads. Therefore the importance of the present decision can be seen, as it carries into effect the principle affirmed in the former case, and lays the burden upon the plaintiff of proving, not the average expenses of repairing the road that has sustained injury, but the damage incurred as ascertained by reference to the average expenditure on other similar roads.

One other observation remains to be made on the Billericay case. In the Court below there were certain expressions contained in the judgment from which it might appear that the learned Judge who tried the case thought that the test which might be applied was to consider whether or not in fact the rates had had to be raised to meet the extraordinary expenditure. In our issue for October 6, 1911, we pointed out that any such consideration taken by itself would be most unsatisfactory.

In the Court of Appeal in that case Lord Justice Buckley expressed the very same opinion as to this being an erroneous view, which we put forward in our "Note" and for the same reasons. The Court only affirmed the decision of the Judge upon the ground that he had rightly held that the plaintiffs had not proved their case before him under the section, as they had not proved the average expenses of repairing similar highways in the neighbourhood.

LAW REPORTS.

OFFICIAL REFEREE'S COURT.
(Before Mr. EDWARD POLLOCK.)

Heavy Claim against Surveyors: Stronge and Others *v.* Beadel, Wood, & Co.

JUDGMENT was given last week by Mr. Pollock, who began the hearing of this action in February, which occupied in the aggregate twenty-two days, during which many expert witnesses were called and lengthy arguments advanced. The plaintiffs, Sir James Henry Stronge, Mr. William Van Sommer, and Mr. John Marcus Poer O'Shea, trustees of the Thorpe Hall estate at Southchurch, near Southend-on-Sea, claimed damages against Messrs. Beadel, Wood, & Co., Ltd., of Gresham-street, E.C., for negligence the plaintiffs alleged had been shown by the defendants in the preparation of contract plans and drawings, and also in the supervision of a contractor's work in the construction of a sea and retaining wall, and the making of certain roads on the Thorpe Hall estate.

It appeared that the sea wall had bulged forward and given way, and the plaintiffs alleged that this was occasioned by the foundations having been placed at an insufficient depth in the clay subsoil, and the insufficient draining of the wall. The consequence was that the pressure of land water at the rear was too great for the wall to stand. The defendants denied negligence, and said that the work had been properly carried out, and pleaded that every possible precaution had been taken, and, further, that the collapse of the wall was the outcome of an act of God, erosion having been started by a storm in October, 1909, although no erosion had taken place during the last forty years previous to the wall's collapse.

Mr. Hudson, K.C., Mr. Moresby, and Mr. Inman (instructed by Messrs. Van Sommer & Chilcott) appeared for the plaintiffs, and Mr. Sankey, K.C., and Mr. Ernest Todd (instructed by Mr. C. J. Parker) represented the defendants.

In the course of a judgment, delivered without notes, and lasting two and a half hours, the Official Referee stated that the work had been carried out under two contracts, a local contractor, Mr. Anstead, being employed in the two instances. Mr. Beadel had been engaged by the trustees as surveyor for the purposes of certifying that the work was fittingly executed. It was a term of the contract that the contractor was not to be paid the final 20 per cent. due to him until a period of six months had passed from the completion of the work. During that period the contractor was liable to maintain the work in sound condition. Mr. Beadel in each case, however, certified for payment of the whole of the balance at the same time as he certified the completion of the work, with the result that in one case Mr. Anstead received about 1,500*l.*, and in the other he received over 2,000*l.*, to which he would not have been entitled for another six months even if the work had been perfectly satisfactory. Mr. Beadel, said the Referee, had granted certificates throughout without regard to the wor that had been done, and seemingly he ha granted them just when Mr. Anstead found would be convenient to receive some mone Both in this connexion and in the granting the final retention money Mr. Beadel ha shown great negligence, and he had also bee negligent in the preparation of the specifica tions, which had enabled Mr. Anstead scamp the work concerning the foundation He (the Official Referee) felt he could not re on the statements as to the facts of eith Mr. Beadel or Mr. Anstead, unless support by independent evidence. In the origin particulars as to the alleged act of God, th defendants had relied on the excessive rainfal and no suggestion had been made as to th existence of a spring which had now been pu forward. When Sir Alexander Binnie was co sulted his report revealed the condition of th wall to be just what one would have expecte it, assuming the plaintiffs' allegations we justified. The foundations were not sufficien The material was bad, and there was, fact, a permanent spring behind the wa which had never been adequately dealt wit The defendants' statements as to erosion ha been entirely contradicted by the experts.

Dealing with the question as to what cause the wall to fall, the Official Referee said th no evidence as to negligence in contract spec fications would convict the defendants negligence in this case if, in fact, the wa had been efficiently constructed, and ough to have stood, if it had not been carried awa by something for which they were n responsible. Erosion had been suggested, b none had taken place for forty years befor and seemingly none had taken place sinc the occurrence. It was amply clear that th work had been scamped in every detail. H (Mr. Pollock) was satisfied, on the evidenc that no erosion took place at all. He w also satisfied that there had been a sprin behind, which was never properly dealt wit and that the spring caused the wall collapse. He must, therefore, conclude th the wall had been negligently built, and th there had been no proper supervision, and must, therefore, hold defendants to be liabl Dealing with the figures, he said that found that on the claim the plaintiffs we entitled to 6,080*l.* 11s. 2d., and that on th defendants' counterclaim (for work done ou side the contracts), the defendants were entitle to 1,269*l.* 15s. 7d. There would be a balan judgment for the plaintiffs for 4,810*l.* 15s. 7d.

Mr. Ernest Todd asked for costs concernin different items which had been admitted o the defendants' counterclaim, but the Offici Referee refused this application.

CHANCERY DIVISION.
(Before Mr. Justice SWINFEN EADY.)

Alleged Custom as to Surveyor's Fees: Reading Industrial Co-operative Society, Lt *v.* Palmer.

HIS LORDSHIP heard this case on Frida March 22, Saturday, the 23rd, and Monday, th 25th. It raised an important question of alleged custom in Reading and district, a also in London, that the purchaser of la for building purposes, whose building pla had to be approved by the vendor's surveyo was liable to pay the fees of such surveyo and also a question of construction of th conveyance of land to the plaintiffs.

Mr. Frank Russell, K.C., and Mr. Luxmoo appeared for the plaintiffs; and the defen ants were represented by Mr. Micklem, K.C and Mr. Stiebel.

In opening the case Mr. Russell said th the action was commenced by originati summons in the first instance, and raised short point of construction under an indentu of conveyance, by which certain land, 3½ acr in extent, in Grovelands-road, Reading, w conveyed by Sir Walter Palmer, Bart., to t plaintiffs. The defendants were Mess Eustace Exall Palmer, Robert Clarina Sha and Richard Blake Harrison, who were t trustees of Sir Walter Palmer, who had di since the date of the conveyance, which w May 18, 1908. Under the conveyance t defendants were to put a building on the la to the satisfaction of the vendor's surveyo They had, of course, to pay their own s veyor's fees, and the defendants contend that they had also to pay the fees of S Walter Palmer's surveyor. Evidence was fil by the plaintiffs in support of the summo and in the defendants' evidence in answer th set up a custom that, notwithstanding t contract, there was a custom prevalent th the plaintiffs were bound to pay Sir Wal Palmer's surveyor. Then another summo was taken out asking that the case should put in the list for trial with witnesses

rder that the question of custom could be ealt with. The plaintiffs issued a writ claiming specific relief, and thus the matter came efore the Court. The conveyance contained covenant on the part of the plaintiffs that ey would observe and perform the covenants ontained in the schedule. After reading the eed Mr. Russell submitted that it was for he defendants to show that anything else as imported into the contract between the arties by reason of a special local custom. His Lordship agreed, and accordingly Mr. Micklem called evidence, the effect of which s given in the judgment appearing below.

Mr. Russell called rebutting evidence, and Mr. Wm. L. Millar, F.S.I., an architect and surveyor, who had carried on his profession t Reading for upwards of twenty-five years, was the first witness. Mr. Millar said he acted for several building estates, and was paid by piecework or time. When buildings o be erected had to be approved by the vendors' surveyor, the costs of such approval were usually paid by the vendors. When the contract was silent as to that, he always charged the vendors. He never charged the purchaser for approving plans unless there was a specific clause to that effect in the contract.

Mr. Russell: You have heard the evidence given as to a custom that where the contract is silent the purchaser should pay the costs?—There is no such custom in our part of the country, that is for 10 miles round Reading.

Mr. Eggington, surveyor, of Reading, gave similar evidence.

After the close of the plaintiffs' evidence Mr. Micklem gave up the point of custom at Reading, but submitted that the certificate of the vendor's surveyor was for the benefit of the plaintiffs and not for defendants' benefit. Even assuming that Mr. Tuckett was employed by the defendants, he would have to obey their orders, but would have an absolute discretion to say, "I will not give you my certificate of approval until I am paid by you." He would be in the position of a quasi-arbitrator.

After hearing counsel,

His Lordship, in giving judgment said: The plaintiffs claim a declaration that according to the true construction of the conveyance of May 18, 1908, the plaintiffs are not bound to pay the costs, charges, and expenses incurred by the defendants in obtaining the approval of the surveyor of the defendants of the specifications and plans pursuant to which the plaintiffs proposed to build. When the summons was issued the sole question was whether the plaintiffs were under any liability to pay. It appears, however, that the defendants set up that there was a custom or usage which must be treated as incorporated under the deed. That custom was denied, and as the question could not be tried on a summons, a writ was issued by the plaintiffs so that it could be tried with witnesses. As put into writing by the defendants, the custom alleged was as follows:—

"That by general usage, where a conveyance contains covenants by the purchaser not to build except in accordance with plans and specifications to be approved by a surveyor; the fees of the surveyor, including any legal charges properly incurred by him, are paid by the person requiring the approval in the absence of any express provision in the contract."

I have, therefore, first to determine the construction of the deed, and secondly whether the custom is established so as to throw the burden of disproving it on the plaintiffs.

The conveyance of May 18, 1908, was to enable the plaintiffs to erect a steam bakery, and the frontages to the land were reserved to Sir Walter Palmer, and not conveyed to the purchasers. In the deed the purchasers covenanted to perform and observe the stipulations and restrictions in relation to the land imposed by the vendor. The vendor did not covenant in any way with a view of binding his own land as to the way in which it was to be developed, or of restricting in any way the user of his own land. The covenants are only by the vendor to restrict the user of the land conveyed to the plaintiffs. In the first schedule to the deed the plaintiffs undertook to erect to the satisfaction of and under the inspection of the vendor, a good and sufficient fence or wall along all the boundaries of the premises, and secondly not to erect any building whatsoever on a certain part of the property, and not to erect any building otherwise than in accordance with such plans and specifications as might be previously approved of in writing by the surveyor of the vendor. After the conveyance the plaintiffs submitted plans to Messrs. Tuckett & Son, the vendor's surveyors, of the buildings they proposed to erect. On February 12, 1909, Messrs. Tuckett & Son wrote with reference to the plans:—". . . The customary charge for approving plans and seeing that they are properly carried out is 1¼ per cent. of the cost of such buildings, but as you will be spending a considerable sum of money, we propose to charge you an inclusive fee of 100 guineas." It appeared that the cost of the buildings was close upon 3,000*l.* The plaintiffs objected, and saw Sir Walter Palmer, who communicated with Messrs. Tuckett & Son, and in the end the buildings were put up and the plaintiffs did not pay anything by way of fee to the vendor's surveyor. The next thing was with regard to the conveyance. A letter of March 3, 1909, from Messrs. Tuckett & Son stated that they could not approve the plaintiffs' proposal of a six-foot iron fence, and suggested various alternatives. It was quite manifest that they were considering the effect of the fence on the adjoining land of Sir Walter Palmer. In 1911 the plaintiffs wanted to make a slight addition to the building, and in June they submitted plans to Mr. Tuckett for his approval. Those plans were returned by Mr. Tuckett with an intimation that they ought to be sent to Messrs. Waterhouse & Co., the solicitors for Sir Walter Palmer's trustees. Accordingly the plans were sent to Messrs. Waterhouse. A question had arisen as to whether the plaintiffs were liable to pay the surveyor's charges, and it was thought best that the plans should be sent to the surveyor through the solicitors. On July 6 Messrs. Waterhouse wrote:—"We shall be pleased to consider the plans on receiving from you an undertaking to pay our charges and the surveyor's fee in connexion therewith. It does not follow that Messrs. Tuckett have no authority to represent the executors, but it is best for us, acting for the trustees, to instruct them in the usual way."

The plaintiffs would not give any undertaking to pay the costs, and on July 18 Messrs. Waterhouse wrote:—"It is without exception the practice for the applicant to pay the charges of the lessor's solicitors for the licence, and it is the same with regard to making alterations. Our clients are trustees, and we cannot ask them to consent to matters of a technical character without being properly advised, and unless you are prepared to pay these charges we cannot consent to the alterations." That letter was written under a misapprehension, because the consent of the trustees was not required; all that was necessary was that the plans should be approved by the vendor's surveyor. On October 12, six guineas having been paid by the purchasers without prejudice to any question, this summons was issued raising the question of construction. Of the six guineas, one guinea was for legal charges and five guineas for Messrs. Tuckett & Son's costs.

It was urged by the defendants, first, that according to the true construction of the deed the purchaser ought to pay the surveyor's costs of approving, *i.e.*, that it was like a licence under a lease, and the burden ought to fall upon the person who asks for the lease. In my opinion, that is an erroneous way in which to look at the deed, and was not the position of the surveyor under it. In my opinion, the covenant is a covenant in favour of the vendor—a restriction upon the user which the purchaser would otherwise be entitled to put his land. The land was conveyed in fee simple, and in the absence of any restriction, the purchaser would be able to do what he liked with it. It is quite obvious that the fence to be erected under the inspection of the surveyor is a fence which the surveyor for the time being of the vendor has to approve. He is the person to approve. In my opinion, the surveyor under the deed is a person who is instructed and retained by the vendor or his assigns, and to whom authority is conveyed to approve plans on behalf of the vendor. He can only approve plans as the vendor authorises him to do it. In my opinion, the person who employs and engages the surveyor is the person to pay him. It is very common for the contract to expressly provide for the party to pay the surveyor, and in case the charge is thrown upon the purchaser it usually specifies the fee as so much per house. In the present case there is no reference in terms to the person by whom the surveyor is to be paid, and there is nothing, in my opinion, which requires the purchaser to pay the surveyor's charges as a condition precedent to obtaining approval of the plans. Clauses I. and II. of the schedule to the conveyance must be read together. In my opinion, the vendor in both cases—with regard to the fence and with regard to the building—is to pay his own surveyor for the work which he does for him in approving the plans from which the buildings are to be erected. If it were a matter of construction only, I am of opinion that there is nothing to show that this is a charge upon the purchaser.

But it is said that in a case like this evidence of usage and custom can be received by way of addition to the written contract. I am of opinion that no evidence has been adduced at all, that there is any custom whatever for the purchaser to pay any legal charges. It is strictly confined, if there is such a custom, to the fees of the surveyor. In order to establish the custom in regard to the surveyor's fees, the defendants called three eminent London surveyors, Mr. Farebrother Ellis, Mr. Tuckett, and Mr. Savile. The custom as stated by Mr. Tuckett was 1¼ per cent. on the cost of the building. Mr. Ellis said that he had never heard of a custom with regard to the scale of 1¼ per cent., and he did not know of any definite scale. Mr. Tuckett thought until recently that the scale was 1¼ per cent. for approving plans without reference to the amount of work. Quite recently, however, he said he had heard that the scale was fixed by the Royal Institute of British Architects. Mr. Savile said he did not work on scale at all. Mr. Micklem, after that evidence, very wisely said that the evidence as to the amount of the scale breaks down altogether. On the other hand, Mr. Tuckett introduced a new exception to cases where the purchaser was to pay. He said there was an exception in cases where there was a large estate, and the vendor's surveyor was a salaried servant, and that such a surveyor was not entitled to charge a fee. It seems to me to be very difficult to apply that principle. Mr. Savile further said it is usual in most cases expressly to provide by the contract that the purchaser should pay. In my opinion, having regard to the different views of these three eminent gentlemen as to the nature and extent of the alleged custom, I am not satisfied that such a custom exists, even in London and the surrounding district. I certainly think it is quite clear, and quite sufficient for the determination of this case, that there is no such general usage extending into Berkshire.

The plaintiffs called evidence to show that no such custom existed, in Reading and district, at any rate. Mr. Millar and Mr. Eggington not only denied that the practice existed at Reading, but showed that the practice was the other way, and that when contracts were silent as to who should pay the surveyor's fee for approving plans, the practice was that the vendor should pay, so that not only does the alleged custom fail, but the exact opposite is established. In those circumstances, I am of opinion that the plaintiffs, the purchasers, are not under any liability either as a matter of construction of the contract or by any general usage or custom that can be imported into the contract to pay the costs of the vendor's surveyor for approving the plans. In my opinion, the gentleman who approved the plans—the surveyor for the time being of the vendor—is employed by the vendor, and ought to be paid by him. There will be a declaration to that effect in favour of the plaintiffs, one order on the summons and in the action, and the costs will follow the event.

What is "Repair"? Decision under the Building Act.

A DECISION under the Building Act was recently given by Mr. Garrett, at the West London Police-court, when the point as to what constitutes a "repair" came up for discussion. Messrs. Lichwitz & Co., roofing manufacturers, of Market-street, Paddington, were summoned at the instance of Mr. Tolley, District Surveyor for North Kensington, for failing to give a building notice in respect of a building at 41B, Portland-road, Notting Hill. Mr. H. Pierron (Messrs. Pierron & Ellis) supported the summons, and Mr. Graham Mould (instructed by Messrs. Corbould, Ellis, & Mitchell) represented the defence.

Mr. Pierron stated that the defendant firm carried out a contract for re-covering the whole of the roof of a workshop without giving notice to the District Surveyor. The matter came accidentally to the knowledge of the District Surveyor, who wrote to the defendants and received a reply that they "had merely repaired the zinc roof covering." As a matter of fact, they had covered the whole of the roof with new zinc, and, having regard to the fact that so much of the new patent roofing, a material which was not incombustible, was used, it was very necessary that the District Surveyor should be given an opportunity of testing it in the interest of public safety. He (Mr. Pierron) understood that the defence relied on the exemptions in sect. 209 of the Building Act, which provided that notice was not necessary where there was being carried out "necessary

repair" to a building "not affecting the construction of any external or party wall." He (Mr. Pierron) argued that in this case it was not a matter of repairing the roof, but of making an entirely new one, and he reminded his worship that last May his worship, in a similar case, decided in favour of the District Surveyor.

Evidence was given by Mr. Tolley, the District Surveyor, who stated that the whole of the roof had been recovered with zincs with the exception of the clips.

In answer to Counsel for the defence, the witness said the brickwork of the walls and the woodwork under the roof had not been touched. The work did not affect the construction of any external wall, or was it an addition to or an alteration of the building.

For the defence, evidence was given by Mr. Martin Lichwitz, a member of the firm, who stated that there was no other way of repairing the roof than by putting new zinc in. They did not touch the brickwork or the woodwork, or make any structural alteration at all.

In answer to Mr. Mould, the witness said his firm had been twenty years engaged in roofing work, and they had never given notice to a district surveyor.

In answer to Mr. Pierron, the witness admitted that, with the exception of the clips, the whole of the roof was completely covered with new zinc. His firm did not use the new patent roofing; they only used zinc and iron.

Mr. Mould, addressing the magistrate, contended that his clients came within the exemption in sect. 209, inasmuch as this work was a necessary repair, which did not affect the construction of the building. The point was—was this a repair? and, considering that the only way to repair a zinc roof was by putting in new zinc, he contended that this was a repairing of the roof. If the contention of the District Surveyor was true, his (Counsel's) client might have taken off half the roof at a time and thus escaped the necessity of giving notice. If the defendant had left only one old roll on the roof he would have come within the exemption. Counsel argued further that this work was also a repairing of part of the building, and he cited the case of Badger and Denn, J. P., Vol. 22, page 129, in which the judges in a Divisional Court held that the reconstruction of a doorway was a necessary repair.

The Magistrate observed that he did not suppose there was any Act of Parliament which was so complicated and as difficult to decide upon as the Building Act, and the real truth was that each case had to be decided on its own merits. Reviewing the contentions advanced on either side, his worship observed that he considered that the argument for the defence—viz., that you could not repair a zinc roof except by renewing it—was a sound one, because in so many cases renewal was a good deal more than repairing. The matter was a difficult one to decide, but what occurred to him was that the main structure of the roof remained, and he therefore held that this work amounted to nothing more than the repairing of an old roof. He therefore dismissed the summons.

LONDON COUNCILS.

Acton.—At the last meeting of the Council a recommendation was passed to the effect that notices be published of the intention of the Council to apply to the Local Government Board to prepare a town-planning scheme for the area on the north side of the district. The Board are also to be asked to grant leave to the Council to dispense with the service of notices, draft orders, and orders to occupiers whose tenancy is less than a quarterly tenant.

Barking.—Tenders are to be invited for the erection of an administrative block at the hospital, also for the erection of artisans' dwellings in accordance with three schemes prepared by the Council's Architect. Plans have been passed for Mr. J. Graffy for the erection of fifteen houses in Ripple-road.

Battersea.—The Council have decided to execute paving works in connexion with the widening of Falcon-road on behalf of the London County Council, at a cost of 969*l.* A portion of Clapham-common, west side, is to be made up, the carriageway with tar, red slag macadam, and the footways with 2-in. artificial stone and tar-paving, at an estimated cost of 1,427*l.*; as is also a portion of Cringle-street, with the same paving except the footpaths, which are to be of 2½-in. artificial stone, at an estimated cost of 848*l.* Repairs are also to be carried out in various roads throughout the borough at an estimated cost of 323*l.* Electricity mains are to be extended at an estimated cost of 403*l.* Plans submitted by Price's Patent Candle Company, Ltd., have been passed for the erection of offices at their Belmont Works, York-road.

Bermondsey.—Plans have been passed for rebuilding premises to new frontage line in Rotherhithe-street for Mr. R. Hyde. The architect is Mr. H. D. Searles-Wood, of 157, Wool Exchange, E.C.

East Ham.—Sanctions have been received from the Local Government Board to the borrowing of 8,943*l.* and 1,772*l.* for the execution of sewage works in High-street North, East-avenue, Southend-road, and Sibley-grove, and for concrete sewers in connexion therewith, respectively. Plans have been passed as follows:—Mr. G. Mitchell, seventy-eight houses, Monmouth-road; Mr. A. W. Pierce, twenty-four houses, Brampton-road; Messrs. T. Young & Sons, eight houses and two shops and houses, Barking-road; Mr. W. Smith, eight houses, Mafeking-avenue.

Finchley.—The following plans have been passed:—Messrs. Lavington Brothers, six houses, Fenstanton-avenue; Mr. R. Ellwood, five houses, Holmwood-gardens; Mr. G. Bennett, six houses, Lansdowne-road; Mr. J. C. Williamson, six houses, Clarence and Lyndhurst Gardens.

Hackney.—Plans prepared by Mr. Cooper, architect, of the branch library proposed to be erected in Homerton have been approved by the Council, and are to be forwarded to Mr. Carnegie. On his approval tenders are to be invited. It is estimated that the building will cost 5,280*l.* The tender of Mr. A. T. Catley, 23, Lloyd-square, W.C., has been accepted, at 559*l.* 6s. 3d., for making-up part of Wilton-road and Pigwell-path. The edge kerbs and flat channels are to be of Guernsey granite. No objection is to be raised to the proposal of Messrs. H. Bradford & Sons to erect eight houses in Wellington-road.

Ilford.—The following plans have been passed:—Messrs. W. Fletcher, Ltd., extensions to factory, Roden-street; Mr. P. E. Brand, three shops and houses, Green-lane; Mr. W. J. Hobbs, thirty-seven houses, Cranbrook-road; Messrs. Higgins & Thomerson for Mr. W. H. Knox, fifteen houses, South Park-drive.

Kensington.—The Borough Engineer has been instructed to prepare plans and estimates for making-up Kingsley-mews, Stamford-street, Balliol-road, and portion of Kellfield-gardens, as new streets. It has been decided to accept the specifications and estimates of the Taroads Syndicate, Ltd., for paving the carriageway of a portion of Addison-road with 3-in consolidated bituminous macadam, at a cost of 4s. per yard super. with free maintenance for a period of four years. The area to be dealt with amounts to 6,655 yds. A portion of the kerb, channel, and footway paving in Pembridge-square, and a portion of the kerb and footway paving in Cornwall-road are to be reinstated at an estimated cost of 127*l.*

Lewisham.—A portion of Brownhill-road is to be coated with tar macadam at an estimated cost of 1,097*l.* The following plans have been passed:—Mr. F. Howkins, eight houses, Cliff View-road; Messrs. Norfolk & Prior, five shops and houses, Perry Vale; Mr. J. Nicholls, eight houses, Manwood-road.

Marylebone.—It has been decided to provide a tower in connexion with the Council's new Town Hall.

Middlesex.—The Committee appointed by the County Council to consider and report what plans, if any, should be taken to provide further accommodation for lunatics in the county have come to the conclusion that further accommodation should be provided by means of a new asylum, and that steps should be taken to find a suitable site. The tenders of the Acme Flooring and Paving Company (1904), Ltd., at 4,305*l.* 13s. 9d. and 4,622*l.* 3s. 4d., have been accepted for renewing the wood-paving and substituting wood-paving for macadam, respectively, on the haunches of portions of High-road, Wood Green. The tender of Messrs. A. Fairhead & Son, Enfield, has also been accepted, at 14,975*l.*, for the erection of a county school and technical institute at Ealing. For the erection of additional cottages at Napsbury the tender of Mr. A. Pitkin, St. Albans, has been accepted at 2,885*l.* Certain enlargements are to be carried out at the Napsbury Asylum at an estimated cost of 355*l.*

Southwark.—The following streets are to be repaved with wood during the ensuing year at the estimated costs mentioned:—St. George's-road, 5,120*l.*; portion of Old Kent-road, 3,254*l.*; portion of Trinity-street, 1,000*l.*; portion of Southwark-street, 1,500*l.*; portion of East-street, 1,282*l.* The following are to be paved with asphalt:—Villa-street, 1,885*l.*; Tower-street, 1,641*l.*; Austral-street, 942*l.*; portion of Broadwall, 605*l.*; portion of South-street, 1,131*l.*; portion of Swan-street, 1,230*l.* The present granite setts in Collingwood-street are to be covered with granited asphalt at an estimated cost of 130*l.*, in accordance with an offer received from the Val de Travers Asphalte Company, Ltd. Application is to be made to the Road Board for a grant of 12,000*l.* for asphalting Hillingdon-street and repaving with wood Blackfriars-road.

Walthamstow.—The footpath in Higham Hill-road is to be kerbed and paved. The swimming-bath at the Public Baths is to be shortened by 1 ft. 10 in. by filling in with concrete and facing same with tiles. The following plans have been passed:—Mr. J. Starkey, twelve houses, Blackhorse-lane; Mr. H. H. Iles, seventeen houses, Aveling Park-road; Mr. T. Baker, four houses, Wickham-road; Mr. A. Pimm, four houses, Woodstock-road; Messrs. Allen Brothers, four houses, Malvern-avenue. Plans have been lodged for Mr. J. E. Ashby for the erection of a factory in Blackhorse-lane.

Westminster.—The tender of Messrs. John Mowlem & Co., Ltd., has been accepted at 806*l.* for constructing a new sewer under Air-street, from Glasshouse-street to Regent-street, and maintaining same for a period of one year. No objection has been raised to a proposal of the Wolseley Tool and Motor Car Company, Ltd., to carry out extensions to their premises at Gatliff-road, Pimlico.

Willesden.—Plans submitted by the Engineer have been approved for making-up Donnington-road, Harlesden. Tenders are to be invited for carrying out wood and asphalt paving in four roads. The Engineer has been instructed to prepare plans and estimates for the construction of a women's underground convenience in Manor Park-road. The following plans have been passed:—Mr. Edward Cavey, six houses, Barr's-road, Stonebridge Park; Mr. A. Welford, for Mr. H. R. Hunter, twelve houses, Doyle-gardens, Harlesden; Mr. W. L. T. Brown, for Mr. A. Phillips, five houses, Chatsworth-road, Willesden Green; Mr. C. W. B. Simmonds, four houses, St. Gabriel's-road, Cricklewood; Messrs. Scott & Fraser, for the British Thomson-Houston Company, Ltd., factory and works office, Neasden-lane; Mr. H. G. Alaway, for Mr. J. E. Neave, six houses, Yawfield-road, Willesden. Plans have been lodged by Mr. W. L. T. Brown for Mr. A. Phillips, and by Messrs. Walter Hall & Sons for Mr. Pearce, for the erection of four houses, Chatsworth-road, Brondesbury, and six shops, Church-road, Willesden, respectively.

Wood Green.—Plans have been passed for Messrs. A. & S. James for Mr. A. R. Abbott, for six houses in Caxton-road.

Woolwich.—The following plans have been passed:—Mr. W. Harris, Steam Joinery Works, North Woolwich, six houses, Silverland-street, North Woolwich; Mr. J. J. Bassett, 121, Earlshall-road, Eltham, four houses, Dunvegan-gardens, Dunvegan-road, Eltham; also four houses, Glenlyon-road, Eltham.

PATENTS.

APPLICATIONS PUBLISHED.*

5,260 of 1911.—Charles Louis Cuthbe and Harry John Grafham: Construction of cutter for forming holes in a sheet of lead, lead alloy, or other comparatively soft material.

5,673 of 1911.—Gustav Scholz: Plastic compositions for the manufacture of floors.

6,501 of 1911.—John Murray Leighton: Method of recording the volume or sectional area of concrete in piles formed in the ground.

7,329 of 1911.—Louis Eck and Hans Klahn: Process of graining wood.

9,753 of 1911.—Reginald Haddan (Frank E. Roff): Dams.

11,448 of 1911.—Maria Elizabeth Buck: Hanging of window-sashes.

13,074 of 1911.—Leonard Freeborn: Clip for fixing together the steel members in reinforced concrete work.

13,275 of 1911.—Moses James Adams: Closet basins.

18,135 of 1911.—Curt Zander: Step-ladders.

18,875 of 1911.—Friedrich Haizmann: Means for securing door-latch handles.

22,129 of 1911.—Louis Wolf: Floor polishing and like machines.

24,004 of 1911.—Heinrich Meister: Chimney or ventilating shaft tops.

24,223 of 1911.—John William Cross: Axle or sash pulleys.

26,621 of 1911.—Jens Rude: Process and apparatus for increasing the draught in chimneys.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions,—; Contracts, iv. vi. viii. x.; Public Appointments, xix.; Auction Sale, xxiv.

Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

APRIL 13. — **Ormskirk.** — CLUB-HOUSE.—Competitive plans are invited for proposed club-house for Ormskirk Golf Club. See advertisement in issue of March 1 for further particulars.

APRIL 20.—**Birmingham.**—BLUE COAT SCHOOL.—Limited to local architects. Assessors, Mr. G. H. Hunt, F.R.I.B.A., and Mr. C. E. Bateman, F.R.I.B.A. Particulars from the Secretary, the Blue Coat School, Birmingham.

MAY 1.—**Rhos Ruabon.**—PAIR OF WORKMEN'S COTTAGES.—Premiums of 10*l.* and 5*l.* Assessor, Mr. Raymond Unwin, F.R.I.B.A. Particulars from Mr. G. Meirion Griffiths, Rhos Ruabon.

MAY 1. — **Wombwell.**—SWIMMING BATHS.—The Wombwell U.D.C. invite designs in competition for public swimming baths, to be erected in Hough-lane, Wombwell, Yorkshire. Three prizes of the value of 40*l.*, 30*l.*, and 20*l.* respectively are offered for the designs placed first, second and third respectively by the assessor. See advertisement in issue of February 16 for further particulars.

MAY 15.—**Portland.**—COUNCIL OFFICES.—The Portland U.D.C invite competitive designs and plans for Council Offices. See advertisement in issue of March 8 for further particulars.

JUNE 1.—**Dunfermline.**—INSTITUTE AT NETHERTOWN.—Cost not to exceed 7,000*l.* Premiums of 20*l.*, 15*l.*, and 10*l.* Assessor, Mr. E. A. Jamieson. Particulars from the Secretary, Carnegie Trust, Abbot-street, Dunfermline.

JUNE 28. — **Hale, Cheshire.**—TOWN PLANNING SCHEME.—Premiums 50*l.* and 25*l.* Particulars from the Council Offices, Hale.

JUNE 30.—**Padiham.**—TOWN HALL, BATHS, ETC.—Premiums 40*l.* and 20*l.* Particulars from Mr. J. Gregson, A.M.Inst.C.E., Surveyor's Office, Padiham.

JULY 1.—**Dusseldorf.**—**A plan for the extension of the City of Dusseldorf. Premiums of 1,000*l.* to 375*l.* Conditions on application to the Chief Burgomaster, Dusseldorf. A translation appeared on page 365, September 29.**

AUGUST 30. — SAXON SNELL PRIZE. — Fifty guineas; with medal, is offered for essay on a hospital subject. Particulars from the Sanitary Institute, 90, Buckingham Palace-road, S.W.

NO DATE. — **Cardiff.** — FOOTBALL STANDS.—Premiums 30*l.*, 20*l.*, and 10*l.* Particulars from Mr. C. S. Arthur, 53, Queen-street, Cardiff.

NO DATE.—**Jordanhill, Glasgow.**—PROPOSED TRAINING COLLEGE.—Limited to six firms, named in Competition News, December 1, page 635.

NO DATE. — **Sheffield.** — CRIPPLES' HOME. — Limited to local architects. Mr. E. M. Gibbs, F.R.I.B.A., and Mr. F. E. P. Edwards, F.R.I.B.A., assessors.

NO DATE. — **Warrington.** — SCHOOL. — The Warrington Education Committee invite competitive plans for the erection of a public elementary school. See advertisement in issue of February 16 for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

APRIL 4.—**Aberdeen.**—RECONSTRUCTION.—For the reconstruction of the east wing of Robert Gordon's Technical College. Specifications and quantities from Mr. J. A. O. Allan, architect, 25, Union-terrace, Aberdeen.

APRIL 4.—**Bognor.**—SHOPS.—Erection of three shops at Camden-gardens, London-road. Plans and specification with Mr. Henry R. G. S. Smallman, F.S.I., A.R.I.B.A., 8, Queen-street, Cheapside, London, E.C.

APRIL 6. — **Meldrum.** — REPAIRS.—Alterations and repairs on stable and barn wings at Coutens Farm (Birnie), Meldrum. Plans, specifications, and general conditions of contract with Messrs. Davidson & Garden, 12, Dee-street, Aberdeen.

APRIL 8.—**Duffryn Cellwen.**—HOUSES.—For erection of thirty-nine or more houses, for the Maesmarchog Building Club. Plans and specification with Mr. J. Cook Rees, M.S.A., Parade-chambers, Neath.

APRIL 8.—**Onllwyn.**—INN.—For rebuilding the Half-way Inn, Onllwyn. Plans and specification seen, and quantities from Mr. J. Cook Rees, M.S.A., Parade-chambers, Neath.

APRIL 8.—**Rustington.**—GROYNE.—Erection of a 300-ft. timber groyne on the foreshore west of the Sea Mill. Specification with the Surveyor, Mr. C. W. Leney, The Croft, Angmering.

APRIL 10.—**Dewsbury.**—HOUSE.—Erection of a dwelling-house in Northfields-road West, Dewsbury. Plans seen, and quantities from Messrs. Kirk, Sons, & Ridgway, F.R.I.B.A., architects, surveyors, and valuers, Market-place, Dewsbury.

APRIL 10.—**Dumfries.**—BUILDINGS.—For erection of new county buildings. Plans and specifications at the office of Mr. J. M. Dick-Peddie, architect, 8, Albyn-place, Edinburgh. Quantities, etc., on deposit of 3*l.*

APRIL 10.—**South Farnborough.**—ADDITIONS.—For additions and alterations to the South Farnborough Working Men's Club, York-road. Plan and specifications at the Club.

* APRIL 10.—**Walsall.**—INSTITUTE.—The Staffordshire Education Committee invite tenders for a county mining institute at Chase Town, near Walsall. See advertisement in this issue for further particulars.

APRIL 11.—**Endmoor.**—HOUSE, ETC.—Erection of a house and shop. Plans seen, and quantities, specification, and information from Mr. Malcolm G. Shaw, Lic.R.I.B.A., architect, 45, Highgate, Kendal.

APRIL 12.—**Bradfield.**—REPAIRS, ETC.—For alterations and repairs to the Wharncliffe Side Council School. Plans seen, and specifications, with quantities, from the Education Architect, County Hall, Wakefield. Deposit of 1*l.*

APRIL 12.—**Cymmer.**—PREMISES.—Erection of new business premises, committee-rooms, and assembly-hall, for the Cymmer Industrial Co-operative Society, Ltd. Quantities, on deposit of 2*l.* 2s., from Messrs. T. E. Richards & Kaye, architects and surveyors, Pontypridd and Cardiff.

APRIL 13.—**Coventry.**—BATHS.—For the conversion of Primrose Hill House into public slipper baths. Drawings, conditions of contract, specification, forms of tender, and quantities, on deposit of 1*l.* 1s., from Mr. J. E. Swindlehurst, City Engineer and Surveyor, St. Mary's Hall.

APRIL 13.—**Denbigh.**—HALL, ETC.—Construction of a drill-hall, caretaker's house, miniature rifle-range, and buildings at Brymbo, Denbighshire, for the 4th Battalion Royal Welsh Fusiliers. Drawings, specifications, and form of contract with the architect, Mr. C. D. Rutter, M.S.A., Parr's Bank-chambers, Wrexham. Quantities and form of tender on deposit of 1*l.* 1s.

APRIL 15.—**Abbeyleix.**—HOUSE.—Erection of a dwelling-house at Abbeyleix, for the Viscount de Vesci's Estate. Plans and specification by Mr. A. O'M. Lovell, M.R.I.A., architect, Waterford.

APRIL 15.—**Anerley.**—ALTERATIONS.—For structural alterations to the North Surrey District School, Anerley, S.E. Specification, with form of tender, on deposit of 1*l.* Mr. H. J. Chaldecott, Clerk to the Managers.

APRIL 15.—**Bedale.**—VILLA.—Erection of a villa resident at Wycar, Bedale. Plans and specifications with Mr. Thomas Stokes, architect, Thirsk.

APRIL 15.—**Breaston.**—SCHOOL.—For the erection of a new Council school at Breaston, Derbyshire. Drawings, specification, etc., with Mr. George H. Widdows, A.R.I.B.A., County Education Office, St. Mary's Gate, Derby. Quantities on deposit of 1*l.* 1s.

APRIL 15.—**Bugsworth.**—SCHOOL.—For the erection of a new Council school at Bugsworth, Derbyshire. Drawings, specification, etc., with Mr. George H. Widdows, A.R.I.B.A., County Education Office, St. Mary's Gate, Derby. Quantities on deposit of 1*l.* 1s.

APRIL 15.—**Inverkeithing.**—TANK.—Construction of clear-water tank of ferro-concrete work, with enclosure walls, footpaths, etc. General conditions, specification, and form of tender from Messrs. Kyle, Dennison, & Laing, civil engineers, 174, West George-street, Glasgow, or 34, Castle-street, Edinburgh. Deposit of 1*l.* 1s.

APRIL 15.—**North Darley.**—SCHOOL.—For the erection of a new Council school at North Darley, Derbyshire. Drawings, specification, etc., with Mr. George H. Widdows, A.R.I.B.A., County Education Office, St. Mary's Gate, Derby. Quantities on deposit of 1*l.* 1s.

APRIL 15.—**Romiley.**—SCHOOL.—For erection of a new elementary school in Sandy-lane, Romiley, near Stockport. Plans and specifications seen, and quantities from the Architect, Mr. Joseph Holt, A.R.I.B.A., 9, Albert-square, Manchester, on deposit of 1*l.*

APRIL 15.—**Smalley Common.**—SCHOOL.—For the erection of new Council school at Smalley Common, Derbyshire. Drawings, specification, etc., with Mr. George H. Widdows, A.R.I.B.A., County Education Office, St. Mary's Gate, Derby. Quantities on deposit of 1*l.* 1s.

* APRIL 15.—**Southend-on-Sea.**—SCHOOL.—The Essex Education Committee (Rochford Hundred Higher Education Sub-Committee) invite tenders for erection of a new secondary school at Southend-on-Sea. See advertisement in this issue for further particulars.

APRIL 16.—**Belfast.**—ALTERATIONS, ETC.—For making alterations, etc., at premises, North-street. Plans and specifications seen with Messrs. Young & Mackenzie, Scottish Provident-buildings, Belfast, and quantities from Mr. S. C. Hunter, Scottish Provident-buildings, on deposit of 2*l.* 2s.

APRIL 16.—**Doddington.**—COTTAGES.—Erection of two single cottages on Bank or Granary Farm. Plans and specifications with the Land Steward (Mr. S. Croot), Brampton, Hunts.

APRIL 16.—**London.**—EXTENSIONS, ETC.—Erection of a porter's lodge, dispensary, and extension of nurses' home at the Infirmary, Brook-street, Kennington-road, S.E. Plans and specification by Mr. F. A. Powell, F.R.I.B.A., F.S.I., 344, Kennington-road, S.E. Quantities on deposit of 2*l.* 5s.

APRIL 17.—**Halifax.**—BUILDING.—Erection of a new building to provide accommodation for the fourth class at the Halifax Workhouse. Drawings and specifications, and quantities from Messrs. Clement Williams & Sons, architects, Post-Office-buildings, Commercial-street, Halifax.

APRIL 18.—**Croydon.**—SCHOOL.—Erection of a handicraft centre at Boston-road Council School. Drawings by Mr. A. Sunderland, Education Office, Croydon. Quantities and forms of tender on deposit of 1*l.* 1s.

APRIL 18.—**King's Lynn.**—MORTUARY.—For the erection of a mortuary at the rear of the Town Hall. Specification and plans with Mr. Alfred J. Smith, Borough Surveyor, Town Hall, King's Lynn.

APRIL 18.—**Seacombe.**—PURIFIER.—For construction of purifier-house at the Gasworks, Dock-road, Seacombe, Cheshire. Plans, specification, and quantities from the Engineer and Manager, Mr. J. H. Crowther, Dock-road, Seacombe. Deposit of 2*l.* 2s.

APRIL 20.—**Bexley.**—LIBRARY.—For erection of proposed branch library. Plans with the architect, Mr. E. Brantwood Maufe, A.R.I.B.A., 23, Old-buildings, Lincoln's Inn, W.C. Forms of tender and specifications on deposit of 1*l.* 1s.

APRIL 24.—**Ashton-under-Lyne.**—EXTENSIONS.—For alterations and extensions to the electricity works. Plans seen, and quantities from the architects, Messrs. Lindley & Gibson, Market-avenue, Ashton-under-Lyne, on deposit of 2*l.*

APRIL 24.—**Limbury.**—SCHOOL.—For erection of a new Council school. Drawings, specifications, and form of contract with Messrs. Gotch & Saunders, architects, Kettering. Deposit of 1*l.* 1s.

APRIL 27.—**Pontypool.**—HOUSES.—Erection of 100 dwelling-houses. Plans, specifications, and conditions with the Council's Architect, Mr. C. F. Wilton, Club-chambers, Pontypool.

* MAY 15.—**Teddington.**—SEWAGE DISPOSAL AND REFUSE DESTRUCTOR.—The Teddington U.D.C. invite tenders for construction of buildings, chimney shaft, roadway, sewers, tanks, filters, and other works in connexion with the sewage disposal works at Broom-road. See advertisement in this issue for further particulars.

NO DATE.—**Birkenhead.**—HALL, ETC.—Erection of hall and school premises connected with St. Paul's Presbyterian Church of England. Quantities, on deposit of 1*l.* 1s., from the architects, Messrs. Green, Knowles, & Russell, 19, South John-street, Liverpool.

NO DATE.—**Broxton.**—CHAPEL.—Erection of a new Primitive Methodist chapel at Brown Knowl. Mr. J. Harry Pickard, architect, Whitchurch.

NO DATE.—**Cogan.**—ADDITIONS, ETC.—For alterations and additions to Nos. 4 and 5, Pill-street, Cogan. Plans and specifications with Mr. Ivor J. Purnell, 102, St. Mary-street, Cardiff.

NO DATE.—**Diggle.**—PREMISES.—For erection of new premises for the Liberal Club, Diggle. Messrs. E. W. Leeson and J. Burgess, joint architects, 49, Princess-street, Manchester.

NO DATE.—**Dunfermline.**—OFFICES.—Erection of new offices in Abbot-street. Plans seen, and schedules from Messrs. Muirhead & Rutherford, architects, Dunfermline. Deposit of 1*l.*

* NO DATE. — **Hitchin.** — BACON FACTORY.—Tenders are invited for the erection of a proposed bacon factory of brick and steel construction. See advertisement in this issue for further particulars.

NO DATE.—**Hull.**—WORKS.—Erection of proposed new works in Dock-street, for Messrs. A. Brown & Sons, Ltd. Specifications and conditions of contract with Messrs. Harbron & Robson, architects, 50, Spring-bank, Hull. Quantities on deposit of 1*l.* 1s.

BUILDING—continued.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

No DATE.—**Northampton.**—ADDITIONS, ETC.—For alterations and additions to Berry Wood Asylum. Drawings with Messrs. Gotch & Saunders, architects, Kettering.

ENGINEERING, IRON, AND STEEL.

APRIL 6.—**Keith.**—BRIDGE.—For widening, strengthening, and improving the bridge over the Isla, between Keith and Fife-Keith. Plans and specification with Mr. C. C. Doig, Engineer, Elgin.

APRIL 17.—**Mayfield.**—RESERVOIR.—For erection and construction of a pumping-station and reservoir. Plans and site of works seen, and quantities, on deposit of 2*l.* 2s., from Mr. Luther Adams, Surveyor to the Council, Stanton, near Ashbourne.

FURNITURE, PAINTING, MATERIALS, etc.

APRIL 8.—**Dearnley.**—DECORATING.—For redecorating the medical officer's house at the Workhouse. Specifications at the Workhouse, Mr. R. A. Leach, Union Clerk, Union Offices, Townhead.

APRIL 11.—**London.**—PAINTING.—For external and internal cleansing, painting, and other works at relief station and dispensary, 46 and 47, Clarendon-square, N.W. Specification by their Architect, Mr. A. E. Pridmore, 2, Broad-street-buildings, E.C. Deposit of 5*l.*

APRIL 12.—**Lintrathen.**—GATE.—For erecting a wrought-iron gate. Plans and specification seen, and schedules from Mr. George Baxter, Engineer and Manager, Water Engineer's Office, 93, Commercial-street, Dundee.

APRIL 13.—**Burton-on-Trent.**—PAINTING.—For painting, etc., at schools. Specifications and forms of tender from Mr. Henry Bence, Secretary and Director of Education, Education Offices, Burton-on-Trent.

APRIL 13.—**Cardiff.**—FLOORS.—For provision of tile floors at the Hospital, Headquaters Homes, Ely. Specification, with form of tender, from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 13.—**Cardiff.**—RAILINGS, ETC.—For providing and fixing wrought-iron boundary railings, etc., on land near Headquarters Homes, Ely. Specification, with form of tender, from Mr. Arthur J. Harris Clerk, Union Offices, Queen's-chambers, Cardiff.

✱ APRIL 18.—**London, N.**—PAINTING.—The St. Mary, Islington, Guardians invite tenders for painting, whitewashing, etc., at Infirmary, High-gate-hill, N. See advertisement in this issue for further particulars.

APRIL 18.—**London.**—PAINTING.—For painting works, etc., at the Tooting Home, Church-lane, Tooting. Form of specification and tender, on deposit of 1*l.*, to Mr. F. W. Piper, Clerk, Union Offices, St. John's-hill, Wandsworth, S.W.

APRIL 18.—**Plymouth.**—PAINTING.—For painting at Victoria Park. Specifications seen, and forms of tender from Mr. James Paton, Borough Engineer and Surveyor.

APRIL 19.—**Blackpool.**—REPAIRS, ETC.—For decorations and repairs to the central and branch police-stations. Forms of specification from Mr. T. A. Connely, on site of proposed Palatine-road, Council school.

✱ APRIL 20.—**London, N.**—PAINTING.—The Metropolitan Asylums Board invite tenders for cleaning and painting and repairs at Northern Convalescent Fever Hospital, Winchmore Hill, N. See advertisement in this issue for further particulars.

✱ APRIL 20.—**London, S.W.**—PAINTING.—The Metropolitan Asylums Board invite tenders for cleaning and painting and repairs at South-Western Fever Hospital, Stockwell, S.W. See advertisement in this issue for further particulars.

APRIL 22.—**Chester.**—TIMBER.—For supply of timber for handicraft instruction in City Public Elementary and other schools. Forms of tender from the Director of Education, Town Hall, Chester.

No DATE.—**Stafford.**—PAINTING.—For repainting the exterior of the Stafford Asylum buildings. Mr. W. James Nevett, the County Architect, County-buildings, Stafford.

No DATE.—**Warrington.**—PAINTING.—For painting outside wood and iron work of part of the Asylum buildings. Tender forms from Mr. Henry Ellis, Clerk and Steward.

ROADS, SANITARY AND WATER WORKS.

APRIL 9.—**Crewe.**—ROADS.—For the making of the back passages of Edward-street. Plans and specifications seen, and information from Mr. G. Eaton-Shore, Borough Surveyor, Earle-street, Crewe. Deposit of 1*l.*

APRIL 9.—**Southampton.**—ROAD.—For private street works in Belgrave-road. Plan, specification, quantities, and form of tender at the Borough Engineer's Office. Deposit of 1*l.* 1s.

APRIL 10.—**Wendover.**—SEWAGE.—For the construction of detritus tanks, percolating filter humus tanks, sand filters, storm-water tank and appurtenant works at the sewage farm Drawings and specification seen, and quantiti and form of tender, on deposit of 3*l.* 3s., fro Mr. B. L. Reynolds, Clerk to the Counc 12, Easton-street, High Wycombe.

APRIL 11.—**Llantrisant.**—WATERWORKS.—F construction of a new filter bed and sand ya at Llanilid reservoir, with requisite valves an other works. Drawings and specification see and quantities and form of tender, on deposit 1*l.*, from Mr. Thomas Saunders, Surveyo Council Offices, School-street, Pontyclun, Glam

APRIL 12.—**Barnstaple.**—DRAINAGE.—F drainage work at Albert-place. Plan and speci cation with Mr. E. Y. Saunders, P.A.S.I Borough Surveyor, The Strand, Barnstaple.

APRIL 15.—**Watford.**—SEWERAGE.—Constructio of stoneware pipe sewer and storm-water sewe with necessary manholes, etc. Drawing, spec fication, and form of tender with Mr. W. W Newman, A.M.Inst.C.E., Engineer, Counc Offices, High-street, Watford.

APRIL 16.—**Belfast.**—SEWER.—Construction brick sewer in May-street, Verner-street, an Lagan-street, and glazed earthenware pipe sew in East-street and Lagan-street. Drawings an specification seen, and forms of tenders from th City Surveyor, on deposit of 1*l.* 1s.

APRIL 17.—**Gloucester.**—STONE.—For supply stone. Forms of tender from the District Su veyor, Mr. F. E. Weaver, Berkeley House Berkeley-street, Gloucester.

APRIL 22.—**Wigan.**—TRAMWAY.—Constructio of about 700 lin. yds. of single-track tramway Drawings seen, and specification and quantiti from the Borough Engineer, King-street We Wigan.

APRIL 23.—**Farmborough.**—PATH.—For co struction of a footpath in the parishes of Hig Littleton and Farmborough. Specification fro the Council's Surveyor, Mr. T. Orchard, Th Grange, Hallatrow, near Bristol. Deposit of 1

APRIL 24.—**Brighton.**—FLINTS.—For supply hand-picked flints for highways. Specificati and form of tender from the Borough Surveyo Town Hall, Brighton.

APRIL 26.—**Brighton.**—SEWERS.—For the co struction of sewers. Specifications and forms tenders at the office of the Borough Surveyor the Town Hall, Brighton. Deposit of 1*l.* 1s.

APRIL 29.—**Hastings.**—SEWER.—For laying 9-in. pipe sewer, and other work at Winchelsea road, Ore, Hastings. Drawing and specificatio seen, and form of tender from the Borough Engineer, Mr. P. H. Palmer, M.Inst.C.E., Tow Hall, Hastings.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*CLERK OF WORKS	Three C'ties Asy., nr. Hitchin	3*l.* per week	April 8
*VALUER AND SURVEYOR (IRELAND)	Civil Service Commission	Not stated	April 18
*SEWERS FOREMAN	Lambeth Borough Council	3*l.* per week	April 18
*DISTRICT ROAD FOREMAN	Lambeth Borough Council	2*l.* 10s. per week	April 18

Auction Sale.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FREEHOLD FACTORY PROPERTY, GREENFORD—At the Mart	S. Walker & Son	April 18

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.

	£ s. d.
Best Stocks	1 14 0
Picked Stocks for Facings	2 10 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 13 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	3 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0
GLAZED BRICKS—			
Best White, Ivory, and Salt Glzd. Str'tch'rs	11 7 6	Double Headers	13 17 6
		One Side and two Ends	17 17 6
Headers	10 17 6	Two Sides and one End	18 17 6
Quoins, Bullnose, and 4½ in. Flats	14 17 6	Splays & Squints	16 7 6
D'ble Stretchers	16 17 6		

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	5 6	" "
Best Portland Cement	31 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 13s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 3
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 2		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

	s. d.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7
1¼ in. to 2 in. ditto, ditto	0 6

STONE (*Continued*).

	s.	d.
HARD YORK— Per Ft. Cube, Delivered at Railway Depôt.		
Scappled random blocks	3	0
Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
3 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6
20×12 ditto	13	17	6
20×10 1st quality ditto	13	0	0
20×12 ditto	13	15	0
16×8 ditto	7	5	0
22×10 best blue Portmadoc	12	12	6
16×8 ditto	6	12	6

In. In.	£	s.	d.
20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	18	7	6
18×10 ditto	13	5	0
16×8 ditto	10	5	0
20×10 permanent green	11	12	6
18×10 ditto	9	12	6
16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.
Best plain red roofing (per 1000)	42	0
Hip and Valley (per doz.)	3	7
Best Broseley (per 1000)	50	0
Do. Ornamental (per 1000)	52	6
Hip and Valley (per doz.)	4	0
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6
Do. Ornamental (per 1000)	60	0
Hip (per doz.)	4	0
Valley (per doz.)	3	0

	s.	d.
Best "Hartshill" brand, plain sand-faced (per 1000)	45	0
Do. pressed (per 1000)	42	6
Do. Ornamental (per 1000)	47	6
Hip (per doz.)	4	0
Valley (per doz.)	3	6
Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0
Valley (per doz.)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10	0
Deals: best 3 by 9	13	10	0	...	14	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less thn best.			
Battens: seconds	0	10	0	"		"	
2 in. by in. and 2 in. by 6 in.	9	10	0	...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	...	10	0	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
½ in.	1	0	0	"			
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0	...	5	10	0
Seconds	4	10	0	...	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10	0
Swedish balks	2	12	6	...	3	0	0
Pitch-pine timber (30 ft. average)	5	5	0	...	6	0	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10	0
3 in. by 9 in.	22	10	0	...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0	0
Second yellow deals, 3in. by 11in.	19	0	0	...	20	0	0
" " 3 in. by 9 in.	18	0	0	...	19	10	0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10	0
Do. 3 in. by 9 in.	18	10	0	...	19	10	0
Battens	14	0	0	...	15	0	0
Second yellow deals, 3 in. by 11 in	16	10	0	...	17	10	0
Do. 3 in. by 9 in.	15	0	0	...	16	0	0
Battens	11	10	0	...	12	10	0
Third yellow deals, 3in. by 11 in.	13	10	0	...	14	10	0
Do. 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	15	0	0	...	16	0	0
" " 3 in. by 9 in.	14	0	0	...	14	10	0
Battens	11	10	0	...	12	10	0
Second white deals, 3in. by 11in.	14	0	0	...	15	0	0
" " 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
Pitch-pine: deals	19	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	48	0	0	upwards.			
Oddments	32	0	0	"			
Seconds, regular sizes	33	0	0	"			
Oddments	28	0	0	"			
Kauri Pine—Planks per ft. cube.	0	4	6	...	0	6	0
Danzig and Stettin Oak Logs— Large, per ft. cube	0	3	0	...	0	3	9
Small " "	0	2	6	...	0	2	6
Wainscot Oak Logs, per ft. cube	0	6	6	...	0	8	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	10	...	0	1	0
¼ in. do. do.	0	0	8½	...		—	
Dry Mahogany—Houndras, Tabasco, per ft. super. as inch	0	0	10	...	0	1	1
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	18	0	0	...	22	0	0
American Whitewood planks, per ft. cube	0	5	0	...	0	6	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)— Prepared Flooring, etc.—	Per square. £	s.	d.		£	s.	d.
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	6
¾ in. by 7 in. white " "	0	10	0	...	0	11	0
1 in. by 7 in. " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	10	0	...	8	0	0
Compound Girders, ordinary sections	9	10	0	...	10	0	0
Steel Compound Stanchions	11	0	0	...	12	0	0
Angles, Tees, and Channels, ordinary sections	9	10	0	...	10	0	0
Flitch Plates	9	10	0	...	9	10	0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	...	8	10	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON— Common Bars	9	0	0	...	9	10	0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15	0
Staffordshire "Marked Bars"	11	0	0	...		—	
Mild Steel Bars	9	5	0	...	9	15	0
Hoop Iron, basis price	10	0	0	...		—	
" " Galvanised	17	10	0	...		—	
(*And upwards, according to size and gauge.)							
Sheet Iron Black— Ordinary sizes to 20 g.	10	5	0	...		—	
" " 24 g.	11	5	0	...		—	
" " 26 g.	12	15	0	...		—	
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	...		—	
Ordinary sizes to 22 g. and 24 g.	16	0	0	...		—	
" " 26 g.	17	0	0	...		—	
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18	10	0	...		—	
" " 22 g. and 24 g.	19	0	0	...		—	
" " 26 g.	20	10	0	...		—	
Galvanised Corrugated Sheets— Ordinary sizes, 6ft. to 8ft. 20 g.	15	0	0	...		—	
" " 22 g. and 24 g.	15	5	0	...		—	
" " 26 g.	16	15	0	...		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	...		—	
Best Soft Steel Sheets, 2 g. & 24 g.	13	10	0	...		—	
" " " 26 g.	15	10	0	...		—	
Cut Nails, 3 in. to 6 in.	11	0	0	...	11	10	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	£	s.	d.		
LEAD—Sheet, English, 4lb. and up	20	0	0	...	—
Pipe in coils	20	10	0	...	—
Soil pipe	23	10	0	...	—
Compo pipe	23	10	0	...	—
ZINC—Sheet—	In casks of 10 cwt.				
Vielle Montagne	33	10	0	...	—
Silesian	33	5	0	...	—
Zinc, in bundles, 1s. per cwt. extra.					
COPPER— Strong Sheet per lb.	0	1	0	...	—
Thin "	0	1	1	...	—
Copper nails "	0	0	10	...	—
Copper wire "	0	0	10	...	—
BRASS— Strong Sheet "	0	0	11	...	—
Thin "	0	1	0	...	—
TIN—English Ingots "	0	1	11	...	—
SOLDER—Plumbers' "	0	0	9	...	—
Tinmen's "	0	1	0	...	—
Blowpipe "	0	1	2	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	1½d.	32 oz. thirds	5d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

¼ Rolled plate	2½d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d
⅛ Rough rolled and rough cast plate	2½d.	Ditto, tinted	5d.
⅛ Rough rolled and rough cast plate	3d.		

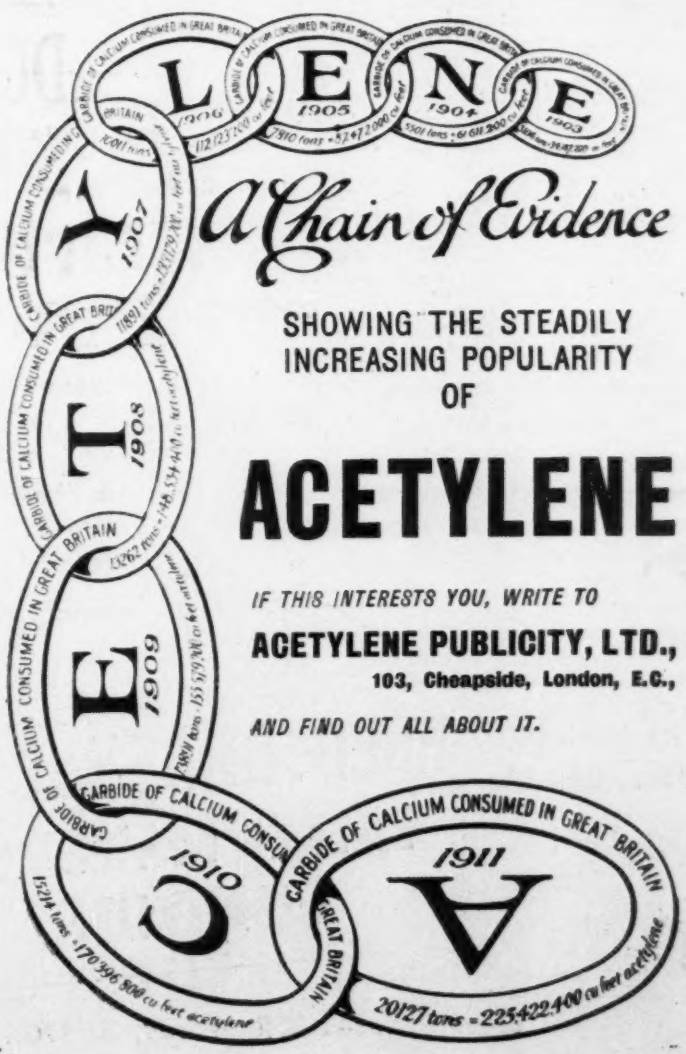
* Not less than two crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	4
" " in barrels	"	0	3	5
" " in drums	"	0	3	7
Boiled " in barrels	"	0	3	7
" " in drums	"	0	3	10
Turpentine in barrels	"	0	2	11
" in drums	"	0	3	1
Genuine Ground English White Lead, per ton		27	10	0
Red Lead, Dry	"	24	0	0
Best Linseed Oil Putty	per cwt.	0	10	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6



VARNISHES, &c. (*Continued*).	Per gallon. £ s. d.
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 9
French and Brush Polish	0 10 6

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 19s. per annum, with delivery *by Friday Morning's Post* in London and its suburbs.

To Canada, post-free, 21s. 6d. per annum; and to all part of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 6 p.m. *on Wednesday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BOURNEMOUTH.—For new Law Courts, Bournemouth. Mr. F. W. Lacey, M.Inst.C.E., Borough and Tramway Engineer :—

J. & W. Hayward	£14,869 0
H. W. Pollard & Son	14,682 0
J. Miller & Sons, Ltd.	14,653 0
F. Hoare & Sons, Ltd.	14,489 0
Jenkins & Sons, Ltd.	14,423 0
Walker & Slater	14,300 0
J. McWilliam & Son	14,295 0
Bowman & Sons	14,195 0
Pethick Bros., Ltd.	13,444 0
W. E. Blake, Ltd.	13,095 0
A. J. Colborne	12,999 12
G. Shears & Sons, Ltd.*	12,995 0
J. & M. Patrick	12,940 0

BURY.—For alterations at the abattoirs :—
J. Tinline, Parker-street Saw Mills, Bury { Schedule of prices.

BURY.—For construction of an ejector chamber at the sewage works, for Bury Corporation. Mr. J. Ainsworth Settle, A.M.Inst.C.E. Quantities by Engineer :—
J. Byrom, Ltd., Woolfold, Bury ... Schedule of prices.

CHELMSFORD.—For erection of thirty-eight dwellings on a site adjoining Rainsford-lane :—

Grimwood & Son	£6,893 5 0	Coles Bros.	£5,700 0 0
Wood Bros.	6,735 0 0	J. Rayner	5,600 0 0
W. J. Lingwood	6,238 11 8	T. J. Bailey	5,598 0 0
Everett & Sons	6,200 0 0	Johnson & Hawkes	5,565 0 0
Eglin & Co.	6,000 0 0	Potter & Sons	5,483 0 0
W. Fincham	5,750 0 0	F. Weight, Chelmsford*	5,441 13 11
F. Willmott	5,730 0 0		

DEVIZES.—For new public convenience on the green, for the Devizes Urban District Council. Mr. F. G. Billingham, Borough Surveyor, Devizes :—

G. O. Offer & Sons	£102 10 6	W. L. Maslen	£94 16 6
W. E. Chivers & Son	98 19 0	H. J. Ash, Cyprus-terrace*	88 18 0

ECCLES.—For erection of a store-shed in the Town Hall-yard, for Electricity Department, Eccles Corporation. Mr. Thomas S. Picton, Borough Surveyor, Eccles :—
T. Moore & Sons, Eccles* £170 12

LONDON.—For the cleaning, repainting, etc., of Battersea Bridge, for the London County Council :—
M. McCarthy, Clapham-park, S.W. £1,699
[The Chief Engineer's estimate, comparable with the tender, was £1,600.]

LONDON.—For rebuilding the Cook's Ground School, Chelsea, for the London County Council :—

J. Garrett & Son	£25,301 0 0
G. Parker & Sons	24,723 0 0
F. & H. F. Higgs	23,479 0 0
J. Longley & Co.	22,687 0 0
McLaughlin & Harvey, Ltd.	22,365 9 10
W. Smith & Son	22,178 0 0
W. Lawrence & Son	21,312 0 0
W. Downs	21,227 0 0
G. E. Wallis & Sons, Ltd.	20,721 0 0
F. & T. Thorne	20,451 0 0
G. Godson & Sons	20,386 0 0

[The Architect's estimate, comparable with the tenders, is £20,500.]

LONDON.—For rebuilding the Curtain-road School, Hoxton, for the London County Council :—

Kirk & Randall	£16,164	Rowley Bros.	£13,319
J. & M. Patrick	13,924	G. Godson & Sons	13,228
Brand, Pettit, & Co.	13,875	G. E. Wallis & Sons, Ltd.	12,904
T. D. Leng	13,634	Holliday & Greenwood, Ltd.	12,945
W. Johnson & Co., Ltd.	13,563	E. Lawrance & Sons, Ltd.	12,894
Patman & Fotheringham, Ltd.	13,538		

[The Architect's estimate, comparable with the tenders, is £13,000.]

LONDON.—For erection of a steam-heating installation for the new engine-house at Abbey Mills pumping station, for the London County Council :—

W. G. Cannon & Sons, Ltd.	£279 0	Strode & Co.	£237 0
Clements, Jeakes, & Co.	250 0	E. Dean & Beal, Ltd.	210 6
G. & E. Bradley	245 0	J. & F. May	199 17

LONDON.—For the quadrennial survey and overhaul of the s.s. *Binnie*, for the London County Council :—

J. Stewart & Son, Ltd.	£2,249 10 0
Thames Ironworks Shipbuilding and Engineering Co., Ltd.	1,954 0 6
Fletcher, Son, & Fearnall, Ltd.	1,945 0 0
Glengall Iron Works, Ltd., Millwall*	1,765 0 0

LOWESTOFT.—For erection of Beach School, near Christ Church. Messrs. Oliver & Chetwood, architects, 7, Southampton-street, Bloomsbury-square, London, W.C. :—
C. Roper, Ipswich* £4,504

MORLEY.—For alterations and additions to finishing mills. Mr. T. A. Buttery, architect, Queen-street, Morley :—
I. Newton, Ackroyd-street, Morley £992 5 6
[All trades.]

STACKSTEADS.—For construction of headquarter buildings, for accommodation of "H" Company, 5th Battalion, East Lancashire Regiment. Mr. A. Brocklehurst, architect and surveyor, Waterfoot :—

H. & B. Coupe Bros.	£1,753 9 1	W. Ashworth	£1,621 19 3
W. Simpson	1,747 11 0	Moore Bros.	1,618 10 0
G. Cunliffe & Son	1,734 0 0	J. R. Holt	1,591 10 0
J. Tinline	1,720 0 0	Hawley & Heaton	1,574 15 0
O. Ashworth	1,685 17 8	J. Byrom, Ltd.	1,535 0 0
C. Lomax	1,640 0 0	Smith Bros., Ltd., Burnley*	1,529 0 0
R. Carlyle	1,636 0 0		

WALTON-ON-THE-NAZE.—For additions to public conveniences. Mr. H. W. Gladwell, A.I.S.E., District Surveyor. Quantities by Mr. H. W. Gladwell :—
P. G. Oxley, Walton-on-the-Naze* £205
J. T. Ward 199
[Surveyor's estimate, £196.]

Ham Hill Stone.
Doulting Stone.
Portland Stone.
The Ham Hill and Doulting Stone Co., Limited
(incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Co. (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to Forth Bridge Co. T.N. 3644 Central.

SPRAGUE & CO.'S, Ltd.,
"INK-PHOTO" PROCESS,
69 and 70, DEAN STREET,
SOHO, W.

JOINERY,
Of every description and in any kind of Wood.
CHAS. E. ORFEUR, LTD.,
ESTIMATES ON APPLICATION.
COLNE BANK WORKS,
COLCHESTER.
Telephone: 0126. Telegrams: "Orfeur, Colchester."

J. J. ETRIDGE, Jr.
SLATE MERCHANTS. LTD.
EXPERTS IN
SLATING, TILING.
BEST WORK ONLY.
Telephone 2685 Wall, or write—
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

PILKINGTON & CO.
(ESTABLISHED 1838),
DEPTFORD WHARF,
190 & 192, CREEK ROAD, DEPTFORD, S.E.
Telephone No.: New Cross 1102 (two lines).
Registered Trade Mark.
Poloneeau Asphalte.
PATENT ASPHALTE AND FELT ROOFING.
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.
SEYSSEL ASPHALTE (*Direct from the Mines*).

ALSO AT DEPTFORD, LIVERPOOL, BRISTOL,
GLASGOW, FALKIRK, BELFAST, & DUBLIN.
Chief Offices: 352 to 364, EUSTON ROAD, LONDON, N.W.